TELEPHONE ENGINEER and MANAGEMENT

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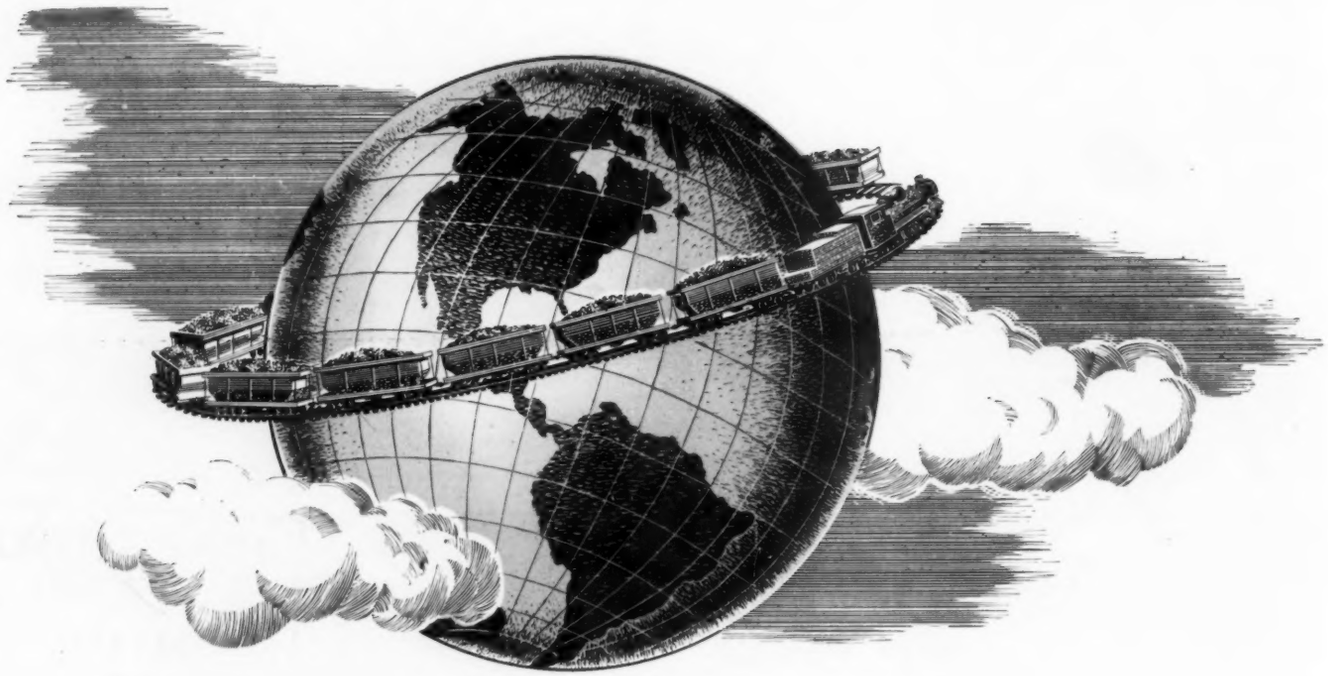
JUNE, 1948

Enough Coal to Circle the Earth . . .



Windber, PENNSYLVANIA

In 1947 Windber celebrated its 50th anniversary as a coal mining town. It was then revealed that in its first half century Windber had furnished the world with 291,656,300,000 pounds of coal — enough to fill a train of 50 ton rail road cars 19,057 miles long! Such a train, if ever completed, would circle the earth completely at the 40th parallel.

Although Windber has been noted for many other industries from time to time, mining and lumbering have remained its backbone industries. Founded originally as a company town by the Berwind-White Coal Mining Company, "Windber" derived its name from the first president of the company, Charles F. Berwind. In addition to this outstanding corporation, more than a score of independent operators have since successfully supported King Coal's reign in Windber.

Mining and distributing coal for its myriad machine age uses is a highly *specialized* business. Planning and publishing telephone directories is also a specialized business. Recognizing this, the Pennsylvania Telephone Corporation serving Windber employs us to publish directories for this area.

Our specialized organization is well trained and equipped to provide each telephone company we serve with a complete directory service — suited to that company's individual requirements. The attractive, accurate directories we publish are a source of increased operating revenue as well as valuable public relations tools for the companies issuing them. Let us submit a complete Directory Service Plan to fit the particular needs of your company.

GENERAL TELEPHONE DIRECTORY COMPANY

EASTERN OFFICE: 185 NORTH WABASH AVENUE, CHICAGO 1, ILLINOIS. TELEPHONE STATE 5478
WESTERN OFFICE: PRESS-TELEGRAM BUILDING, LONG BEACH 12, CALIFORNIA. TELEPHONE 6-7221

Radio was just emerging from the crystal-set stage into battery sets and loud speakers when network broadcasting made its bow. That was on June 7, 1923, with a telephone line hookup between four Eastern stations.

Today, a program can be broadcast from any city in the country to more than 93% of the nation's homes. Telephone engineering and facilities have helped make this possible. Yet this important contribution to radio is but one of many that the telephone industry has made . . . and is making. It's all a part of the industry's tradition of faithful and dependable service.

In Exide Batteries you will find the same dependability for which telephone service is famous throughout the world. For more than half a century, Exide Batteries have been proving themselves worthy of that trust.

Exide
BATTERIES

1888 . . . Dependable Batteries for 60 Years . . . 1948

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • *Exide Batteries of Canada, Limited, Toronto*

IT SEEMS TO US

D. M. (DOC) RUMMEL of the Chicago office of John A. Roeblings Sons Co. was the subject of an interview by BOB BECKER, fishing editor of the Chicago Tribune, in a recent edition. Although Doc lost his right arm in the war he is one of the most proficient fly fishermen in the Middle West. How to tie a fly with one arm missing is easy to Doc as he invented his own gadget to simplify the procedure. Write him if you need details.

• • •

L. W. (LARRY) REYNOLDS, head man of the Ontonagon (Mich.) Telephone Co., informed us during the recent Wisconsin convention that the Michigan Independent Telephone Association, which he also heads as president, will have a full time executive secretary. Their 1948 convention is scheduled for Lansing on September 23 and 24 with the Olds Hotel as headquarters.

• • •

LESLIE CONNOR, attorney of the Okahoma Telephone Association, Oklahoma City, visited us recently while en route home from Washington. He was very enthusiastic over the regional state meetings being held this year and invited us to attend the meeting June 10 at Kiowa. Sam H. Shutt, president of the Texas Telephone Association, was to be one of the speakers.

• • •

Completion of the mailing of our 1948 Buyers Directory & Composite Catalog combined with "A Handbook for Telephone Men" will have been completed by the time this is read. A number of unavoidable delays held up delivery far past our original mailing date. We want to thank those of you that have already received your copy and have written us the wonderful letters about it. Thanks again!

• • •

We are looking forward to attending the North Dakota Telephone Association convention at Minot this month. We had hoped to again attend the West Coast conventions at Los Angeles and Spokane this year but will be unable to do so. Our good friends GRANT SMITH of Santa Monica and LESLIE GRITTEN of the Oregon association will cover for us.

The National Telephone Magazine

TELEPHONE ENGINEER and MANAGEMENT

JUNE, 1948 **VOL. 52, NUMBER 6**

Editor, **RAY W. SMITH** • *Advertising Director,* **ROY F. SMITH**
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COVER: Greenwood (S. C.) Tel. Co. offers mobile service to its subscribers. Cover picture shows extra equipment needed for FM mobile radio telephone service, with exception of the receiver and lights on the dashboard. J. E. Duffie, radio engineer (left) and A. C. Carey, telephone engineer for the Greenwood Telephone Company, are inspecting the set that is being operated for test purposes in a car owned by C. Bruce Barksdale, president of the company. The equipment shown in the trunk of the car here includes transmitter, receiver and a selector for cutting out all telephones except the one that is actually being used.

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ATTENTION
THE ANSWER TO
LIGHT DUTY EQUIPMENT

HERE'S A TRUCK SPECIFICALLY FOR LIGHT DUTY LINE WORK

4460-L

Look!
at the Features on
American 4460-L

- Pole Derrick
- Support Jacks
- Winch (Manual or Mechanical)
- Sliding roof
- Locker Compartments
- 2-man operation

Cut Your Mileage Costs with this American Standard Body

Have you ever seen a truck body specifically designed for light duty line work? *Look over the American 4460-L.*

This body has all the characteristics, except size, of its big brother, the DPL and B-4 line construction bodies. The 4460-L is approximately 1/3 the size of a DPL . . just right for light duty line work.

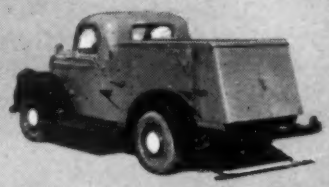
The 4460-L has everything needed for setting poles and stringing lines with a 2-man crew. One man operates the winch (manual or mechanical). The second man sets the pole with the aid of the pole derrick.

Note horizontal and vertical locked compartments on each side. Inside you have full body width and six swivel material hooks. Other features include support jacks, pintle hook, sliding roof, pike pole brackets and many others.

The 4460-L can be mounted on any make of truck chassis from 1/2 to 1-1/2 tons, with choice of 75", 90", or 104" body lengths.

Check your costs sheets and figure how much you can save with this 4460-L body. *We will be glad to answer any questions or furnish specific information on 4460-L, the body specifically designed for light duty line work.*

AFTER INSTALLATION, HERE'S THE TELEPHONE SERVICE BODY



American TB-76, standard with telephone companies for installation, maintenance and general service. Has many special features.

THE *American* COACH & BODY COMPANY

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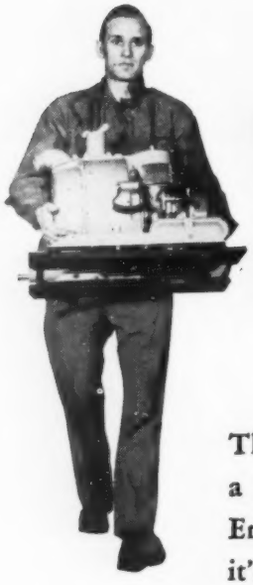
SALES and ASSEMBLY THE AMERICAN COACH AND BODY CO., CALIF. DIV., 432 FIFTH ST., OAKLAND 7, CALIF.
BAKER EQUIPMENT ENGINEERING CO., SUMMIT & NORFOLK STS., RICHMOND 11, VA.

OFFICES 350 MADISON AVE., NEW YORK 17, N. Y. INSURANCE EXCHANGE BLDG., DES MOINES 9, IOWA

ACB and



The One Carryable Pump for all jobs

There's one thing about a Homelite Gasoline-Engine-Driven Pump... it's small enough to get to a job and big enough to *do* the job. But that's not all... not by far. A Homelite... *and only a Homelite* ... has 9 Big Features that make it the best pump for all jobs... your jobs.

The Best Pump for All Jobs is the Pump with All These Features		
1	CARRYABILITY	√
2	FAST SELF-PRIMING	√
3	AUTOMATIC SEEPAGE CONTROL	√
4	HIGH 28-FOOT SUCTION LIFT	√
5	NON-CLOGGING DESIGN	√
6	MAINTAINED RATED CAPACITY	√
7	DISCHARGE PRESSURE	√
8	DEPENDABILITY	√
9	SIMPLE DESIGN AND OPERATION	√

For Pumping Out Manholes

A Homelite has *fast* priming... prevents delays. It is guaranteed for 28-foot suction lifts... good for deep manholes. And it handles seepage quickly to maintain dry footing for workmen.

See for yourself

Write today for our new illustrated bulletin No. L-503 that tells the *complete* story and shows how you can get faster, better pumping with Homelite *Carryable* Pumps.

HOMELITE
CORPORATION
1206 RIVERDALE AVENUE, PORT CHESTER, NEW YORK

MANUFACTURERS OF HOMELITE *CARRYABLE* PUMPS · GENERATORS · BLOWERS · CHAIN SAWS

Reliable

PULLING GRIPS
FOR AERIAL AND UNDERGROUND CABLE···

½ inch to 4 inch diameter.

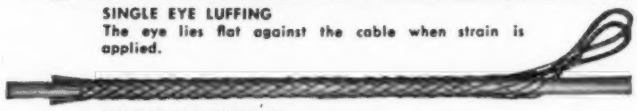
(¾" and 1" Dia. Single Weave)
(1½" to 4" Dia. Double Weave)

REINFORCED FLEXIBLE
● For pulling underground cables. Reinforcement protects wires of the grip at shoulder where wear is greatest.
Eye is formed of the wires themselves, and reinforced. There is no joint of the working end of the grip, no loss of strength.
End of each cable strand may be taped to cable insuring ultimate strength of all strands.
(Double Weave)

PLAIN FLEXIBLE
● Single weave grips for pulling aerial cable through rings without displacing them. Also used for small underground cables.
Double weave grips for pulling underground cables where wear does not warrant reinforced grips.

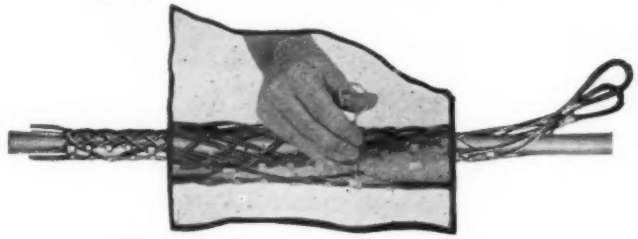
HARD WIRE
● These grips are very tough and stiff, and will withstand great wear. The grip must fit exactly for proper performance. For swabbing ducts. This grip can be packed with waste.
(Double Weave)

SINGLE EYE LUFFING
The eye lies flat against the cable when strain is applied.



DOUBLE EYE LUFFING
Used for pulling out old cable in manhole or for pulling up slack.

SINGLE EYE SPLIT
For moving cables where end is not accessible. An arrangement of strong hooks, make the grip easy to apply, a small tool is furnished, or a small screwdriver.



DOUBLE EYE SPLIT
Application or removal of grip to cable may be done with minimum effort.
¾" Grips — supplied with rawhide lace 1½" to 4" Dia. steel hooks as shown.

MULTIPLE WIRE
● 5/16" to 1⅛" Dia. For pulling any number of wires through conduits.
When ordering, specify diameter of cable or total diameter of wires to be pulled.

Reliable

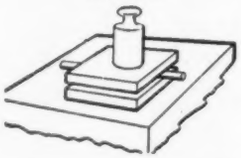
ELECTRIC COMPANY
3145 CARROLL AVENUE
CHICAGO 12

Over 40 Years Service to the Utilities

Tests Show It...Field

MAKE THE TESTS THAT MANUFACTURERS HAVE MADE

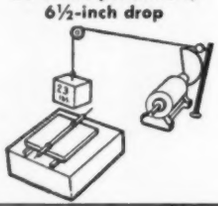
Pressure increased to point of failure



1. COMPRESSION TEST

See how the neoprene-jacketed wire stands up when crushing pressure is applied.

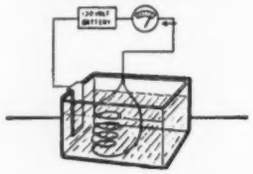
25 blows per minute, 6½-inch drop



2. POUNDING TEST

See how long it takes to crush a neoprene-jacketed wire when weight is dropped on wire repeatedly. Shows the ruggedness of neoprene for tough installations.

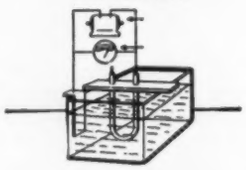
120-volt battery and galvanometer



3. INSULATION TEST

See how little leakage there is when neoprene-jacketed wire is immersed in water. Shows the better electrical properties of wet drop wire when neoprene jackets are used.

High-voltage generator and voltmeter



4. BREAKDOWN TEST

See how much voltage you can apply to neoprene-jacketed wire immersed in water before failure.

Du Pont vertical tube flame test

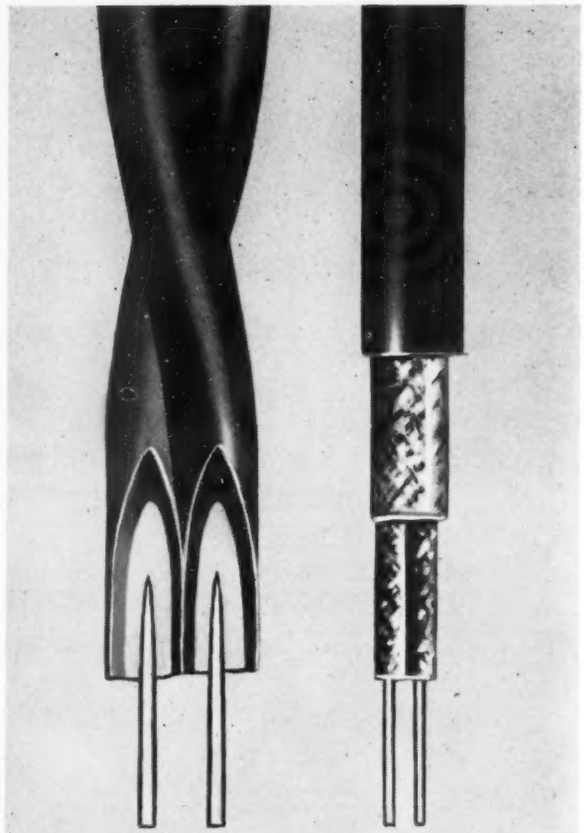
5. FLAME TEST

Prove to yourself that neoprene does not propagate flame in this Underwriters test. Shows why neoprene will not carry a flame into a building.

Exposed under strain to sunlight, weather

6. WEATHER TEST

See how neoprene stands up under sunlight, temperature changes or smoke and chemical fumes. Long-term tests show neoprene jacket is in good condition after ten years of service.



NEOPRENE-JACKETED DROP WIRE is available in two types of construction — non-reinforced, or reinforced for heavy-duty service. These types are offered both in parallel wires and in twisted pair, so that users may select their favorite type of wire.

Send for your free subscription to the Neoprene notebook.

It's full of interesting stories about neoprene's many uses in industry. Write for your free subscription today. E. I. du Pont de Nemours & Co. (Inc.), Rubber Chemicals Division M-6, Wilmington 98, Delaware.

Performance Proves It...

Drop wire lasts longer when protected by a jacket of DU PONT NEOPRENE

EVERYBODY AGREES . . . this drop wire is tops where conditions are toughest. It rubs against trees in the wind — brushes against houses and other wires — is out in every kind of weather. Yet all these destructive conditions have little effect. Because the drop wire is protected by a jacket of tough, durable Du Pont neoprene.

Manufacturers of drop wire have thoroughly tested neoprene. Make the tests described on the opposite page yourself and you will see why neoprene-jacketed drop wire sets performance records. Neoprene resists constant abrasion, flame and chemical fumes. It withstands rain, snow, sunlight, heat and aging. So when you select drop wire—or any type of wire and cable — make sure it is jacketed with Du Pont neoprene. It's your assurance of longer service, better performance and lower maintenance costs.

Rubber Chemicals Division
E. I. du Pont de Nemours & Co. (Inc.)
Wilmington 98, Delaware

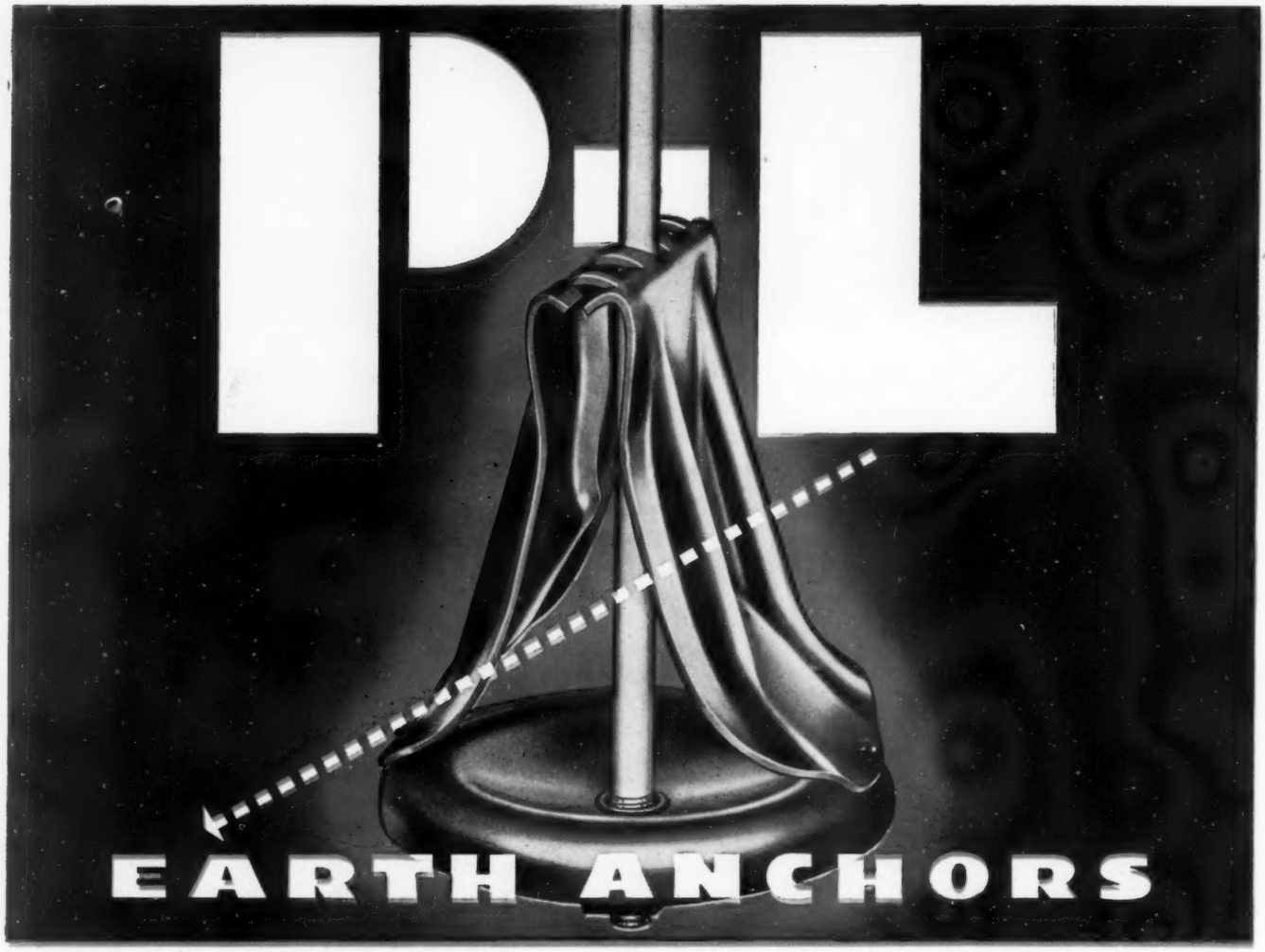
DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

Tune in Du Pont "CAVALCADE OF AMERICA" Monday nights—NBC Coast to Coast

Specify a Jacket of **NEOPRENE**

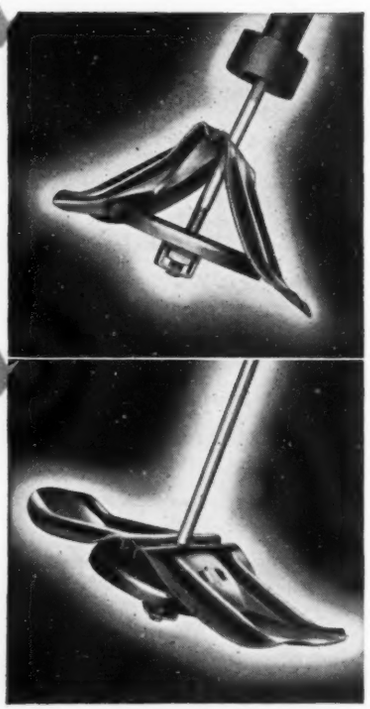
THE RUBBER MADE BY DU PONT



REA APPROVED—ANCHORS COVERED BY PATENTS GRANTED AND PENDING.

P-L ALL STEEL, EXPANDING TYPE EARTH ANCHORS combine real holding power with ease of installation. Cut-out sections at top of blades permit the anchors to open so easily that only a few blows of the tamping bar are required. When fully open, shoulders on blades firmly position blades to base plate creating a stabilized unit. Easily expanded by tamping, the sharp edges cut a path so that the blades spread, through a natural arc, deeply and *permanently* into solid undisturbed earth. Rounded blade edges automatically position direction of blade around rocks and obstructions. Built of two simple pieces of heavy steel plates . . . there are no arms, joints, or multiple pieces to bind or get out of order.

Shear bolts fasten blades integrally to base plate. P-L anchors come to you as assembled units . . . fabricated of hardened steel, with deep rib, truss type blades, which resist bending. Installation is facilitated by the fact that the tamping force is exerted directly onto sharp-edged blades. Reinforced assembly hole strengthens the heavy base plate. Nut retainer permits salvaging of rod.



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SAINT LOUIS 1, MISSOURI

NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*

ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

June 15, 1948

Dear Sir:

House of Representatives on June 2-3 rushed through Air Force-Army $6.5 billion funds bill and $3.6 billion Navy measure. Of interest to communications manufacturing industry, the three armed services were granted total of $184 million for procurement of new electronic and communications equipment & approximately $32 million was allocated for electronics research and development.

For Signal Corps, House Appropriations Committee approved fund of $150 million for 1949 fiscal year & $50 million contract authorization. While this reflected cash reduction of $55 million, it left Signal Corps with total of $200 million available for next fiscal year, both cash and contract authorization, only $5 million less than budget request. Amount for procurement of communications & electronic equipment approved by House was $37.5 million in cash & $50 million in contract authorizations.

Air Force received approval of $35.5 million for procurement of airborne and ground radio equipment. Navy Bureau of Ships was allocated approximately $60 million for securing of new communications and electronic equipment to replace apparatus which has become obsolete. Bureau of Naval Aeronautics was alloted $3 million for airborne radar. Naval Communications only sought $570,000 which was reduction of nearly $1.5 million under current appropriation.

* * *

After close study of Chicago industries, Armed Forces Civilian Selection Committee on June 7 released hand-picked list of prospects to team with specially selected group of National Guard & Reserve Corps officers to attend 2-week course on economic mobilization. Described as Chicago's "future industrial leaders," group includes: G. K. Beare, production mgr. Automatic Electric Co.; Harold Brooks, supt. of industrial relations, Western Electric Co.; E. M. Brown, general personnel supervisor, Illinois Bell; A. R. Dallmeyer, assistant to exec. v.p., Automatic Electric Co.; Harvey O. Edson, assistant sec.-treas., Kellogg Swbd. & Supply Co.

* * *

Peninsular Tel. Co. applied to FCC for establishment of urban mobile radiotelephone system in its center of operations at Tampa; indicated it would file applications later for similar service in other cities in its territory. Peninsular application asked for approval of one fixed land station & 50 mobile units.

* * *

Solid progress being made by Signal Corps in putting into effect its affiliated unit program is evidenced by fact that 13 affiliated units in communications industry already have been activated. In addition, number of sponsorship agreements have been signed & negotiations are being conducted with number of entities in industry indicating

further growth. Nine units have been activated by Bell System companies, three by I.T.&T., & one by Kellogg Switchboard & Supply Co. It is expected that RCA will sponsor six, & Independent telephone industry same number.

* * *

With expanded television transmission facilities providing outstanding feature, Republican & Democratic conventions in Philadelphia this month & in July will undoubtedly have most comprehensive communications coverage in convention history. Bell System, particularly Long Lines Dept. & Bell of Pa., will provide 70 new or additional services to handle heavy telephone traffic loads & tremendous requirements for television, broadcasting, telephoto & press communications.

* * *

Leighton H. Peebles, National Securities Resources Board consultant on communications, has completed staff study on program aimed at effective mobilization of both operating & manufacturing phases of communications industry, capable of expansion in event of war. Program emphasizes interrelationship between military & civilian communications systems, ever-increasing use of electronics & radar, outlines set-up of operating communications division in government for coordinating civilian-military requirements & operations in event of war.

* * *

In line with model agreement worked out by Rural Electrification Administration & Bell System for joint use of poles, it was announced recently that first such general agreement in Wisconsin has been concluded between Wisconsin Tel. Co. & Lafayette Electric Cooperative at Darlington, Wisc.

* * *

Proposed rule covering revisions of annual report form required by FCC of Class A & B telephone companies, set up to simplify companies' reporting, eliminate some data formerly required, & providing report schedules for new mobile radiotelephone services, was recently handed down by FCC.

New form was prepared after conferences between FCC staff & representatives of Bell System & United States Independent Telephone Association. In addition to new schedule for mobile services, it also provides considerable reduction in reports required for regulatory commission expenses. In addition, salary reports for company officials, which formerly had to be made for each officer earning $10,000 or more, now must be made only for those officials with salaries of $15,000 or more.

* * *

Highlights: Southeast Missouri Tel. Co. completing new Poplar Bluff exchange; expect to cutover to automatic operation July 1.... L. D. Densmore's, Charlotteville, Va., daughter Jane Marie to be married June 26....Max C. Walker appointed dist. plant mgr., central district, Lincoln (Neb.) T. & T. Co.; succeeds Clayton H. Liebehart, who retires Aug. 1.

Ray W. Smith, Editor

ANY PLACE *where people congregate* is the place FOR A PAYSTATION

Autelco-Gray Paystations belong wherever there are people. In drug stores, hotel lobbies, restaurants, bus and railroad depots—wherever people gather—you can install Autelco-Gray Paystations with profit. Paystations produce a steady flow of cash.

You can easily add this extra revenue to your operating income. There are Autelco-Gray Paystations to meet every requirement. Inquire about the type best suited to your needs.

HERE—

RESTAURANTS

HERE—

BUS DEPOTS

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

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Export Distributors: INTERNATIONAL AUTOMATIC ELECTRIC CORPORATION

HERE—

DRUG STORES

Autelco-Gray "60" Series Paystations are modern, handsome, self-contained!

HERE—

HOTEL LOBBIES

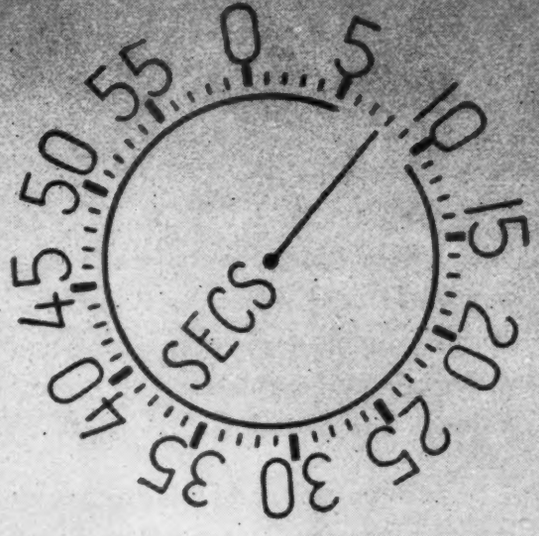
AUTHORIZED AGENTS FOR AUTELCO-GRAY PAYSTATIONS

Automatic Electric Sales Corporation ... Graybar Electric Company ... Kellogg Switchboard & Supply Company ... Leich Sales Corporation ... The North Electric Mfg. Company ... Stromberg-Carlson Company.

Every second counts

WHEN

CALCULAGRAPH
figures toll time!



Every minute and every second of every toll message is accurately computed by CALCULAGRAPH. A permanent printed record is made of each message individually with no calculating or pencil work required of the operators at any time. Modest initial cost makes a CALCULAGRAPH a paying investment right from the start in any exchange—large or small.

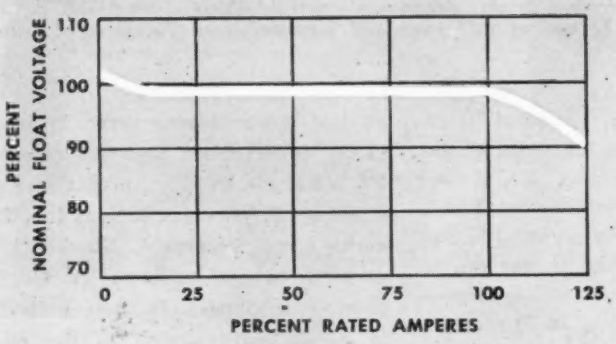
CALCULAGRAPHS are made in several models and are adaptable for any type of switchboard installation. When busy spots develop at certain hours, CALCULAGRAPH pedestal portable mounting can be employed to speed message handling efficiently and accurately. Complete catalog information is available on request written on company letterhead.

CALCULAGRAPH COMPANY

SUSSEX STREET • HARRISON • NEW JERSEY

BATTERY-CHARGER FUNDAMENTALS—

how constant voltage decreases relay maintenance



Typical Voltage Regulation Curve of the E. P. Diverter-Pole Motor-Generator

By maintaining the d-c exchange voltage within close limits, E. P. Diverter-Pole Motor-Generators assure stable and low-cost operation of the sensitive exchange relays. The prevention of *low voltage* minimizes weak coil action and disrupted exchange service. Keeping the voltage from rising *too high* helps to prevent "slapping" of contacts that may result in misalignment, pitting and burning; and preserves the sensitive adjustment of the relays. High coil current, with accompanying insulation breakdown, shorting and burning-out, is avoided. The E. P. Diverter-Pole maintains inherently constant d-c voltage . . . regardless of fluctuations in the a-c power supply. Delicate, separately-mounted regulating devices are not required.

why EP motor-generators are best . . .

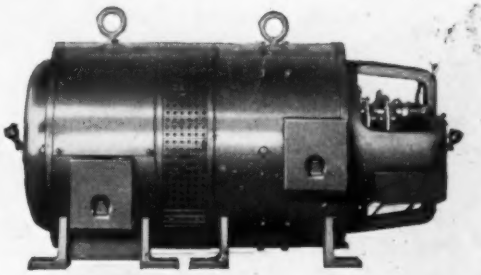
Since 1923, Diverter-Pole Motor-Generators have proved to be the most reliable, maintenance-free and efficient source of direct current for Telephone Exchanges. The characteristics of E. P. Diverter-Poles are ideal not only for the most satisfactory floating charge (a full floating charge is now the accepted standard), but also for carrying all of the exchange d-c load better than any other source of direct current.

The main reason for this superiority is that The Electric Products Company is a specialty manufacturer. For every exchange battery-charging application, E. P. designs and builds an individual Motor-Generator that fits exactly the requirements of the particular operation.

The result is Proved Performance as evidenced by the unequalled long-life records established by Diverter-Poles throughout the Telephone Industry.

For complete details . . .

ASK FOR BULLETIN 209



E. P. DIVERTER-POLE BATTERY CHARGERS

- Are completely automatic
- Control exchange voltage well within high-low limits at all times
- Lengthen battery life
- Are self-protecting against dangerous overloads
- Will not "run away" or reverse polarity

EP X-30

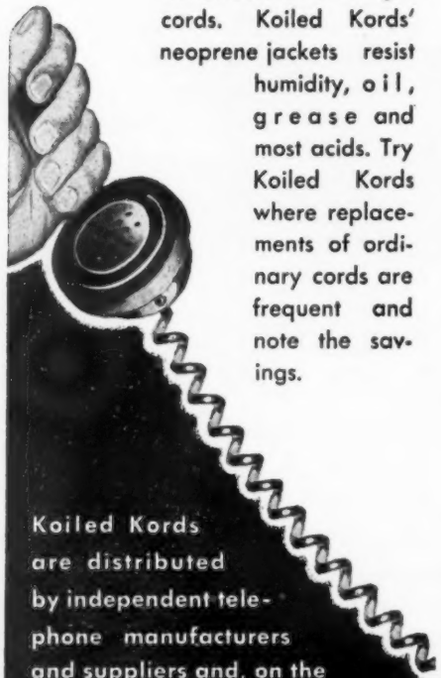
THE ELECTRIC PRODUCTS COMPANY

1729 CLARKSTONE ROAD CLEVELAND 12, OHIO

NOW TINSEL CONDUCTORS

are used in KOILED KORDS for telephones

Tinsel Koiled Kords offer the combined advantages of greater flexibility and longer wearing qualities with all the benefits that Koiled Kords provide. Lowered maintenance costs, reduced replacement expense, longer life and terrific users' popularity more than make up the very slight additional cost over straight cords. Koiled Kords' neoprene jackets resist humidity, oil, grease and most acids. Try Koiled Kords where replacements of ordinary cords are frequent and note the savings.



Koiled Kords are distributed by independent telephone manufacturers and suppliers and, on the West Coast, by the Jewell-Summer Co., Los Angeles, Cal.

Koiled Kords
INCORPORATED
BOX K, HAMDEN, CONN.

★ Free Literature Department ★

All literature described in this department may be obtained by filling out the handy blank at the bottom of this page and forwarding to Telephone Engineer Publications.

Compounds: Sika Chemical Corp. has published a new folder on quick-setting compounds—Sika No. 2 and Sika 4A. These compounds are liquids that are mixed with cement. The initial set of the resulting mortar can be adjusted to be as low as 20 seconds and the final set as low as 30 seconds. Using quick-setting Sika there is no need to excavate or otherwise relieve the water pressure. Even heavy pressure leaks are easily and effectively sealed on the exposed side. Request FL203.

• • •

Electric Branding Irons: Hexacon Electric Co. has issued a new catalog, No. 300, covering Electric Branding Irons. Catolog describes several new types of branding irons, list of materials which may be branded, instructions for using electric branding irons, how to determine branding speeds and uggestions for designing a brand which will be effective and at the same time economical to produce. This new catalog is the most comprehensive ever issued by any manufacturer and desribes a most complete line of Electric Branding Irons made by HEXACON and backed up by two decades of experience in producing quality branding irons. Request FL204.

• • •

Emergency Power: How standby electric power plants serve in many places is described and illustrated in POWER POINTS, a magazine published by D. W. Onan & Sons Inc. The entire issue, Volume 4, Number 1, is devoted to the problem of electric power emergencies. Persons interested in a practical solution to the ever-present problem of electric power shortages and breakdowns are invited to write for this free magazine. Request FL205.

• • •

Short Cuts In Office Systems: A new, improved photocopy unit just placed on the market has a built-in dial-controlled filter that simplifies and speeds up already fast process (60 or more copies an hour). Operating in subdued office light, without lens or darkroom, this unit is being adopted in many offices and plants to get copies of the many kinds of papers stencil duplicators cannot copy—such as photos, drawings, blueprints, tracings, press clippings, graphs, charts, financial data, office forms, work sheets, records and letters. It copies from originals up to full newspaper page size. An illustrated booklet, "Short Cuts in Office Systems," which describes its use, is available. Request FL206.

Date .....

TELEPHONE ENGINEER PUBLISHING CORP.
7720 North Sheridan Road,
Chicago 26, Illinois.

Please forward the following literature described in the Free Literature Department of the June, 1948 issue of TELEPHONE ENGINEER AND MANAGEMENT: (Check information desired)

FL 203..... FL 204..... FL 205.....

FL 206 .....

Name: ..... Title: .....

Company: .....

Street Address: .....

Town: .....Zone: .....State.....

INVEST YOUR "PIN MONEY" IN THE BEST

LOCUST PINS

Locust wood is practically impervious to decay and is impenetrable to moisture. Because of its close-grained hardness locust can be machined into strong, long lasting pins of standard specifications that can be counted on to retain their size and shape.

OAK BRACKETS

Oak pole brackets of unquestioned quality are in demand now as never before in the face of the qualifications necessary in the equipment and materials needed today to "keep 'em talking." Present day maintenance and repair have every reason to demand and get only the best.

GLASS INSULATORS

Research and experiment have produced in Hemingray insulators a glass insulator that is better than any ever before offered.

Non-porous, non-deteriorating, uniform coefficient of expansion and high mechanical as well as high dielectric strength are some of the many qualities that rank Hemingray the "best on the line."

BUCKEYE TELEPHONE and SUPPLY CO.
COLUMBUS 6, OHIO

for Prompt Delivery on STANDARD OR SPECIAL CORDS

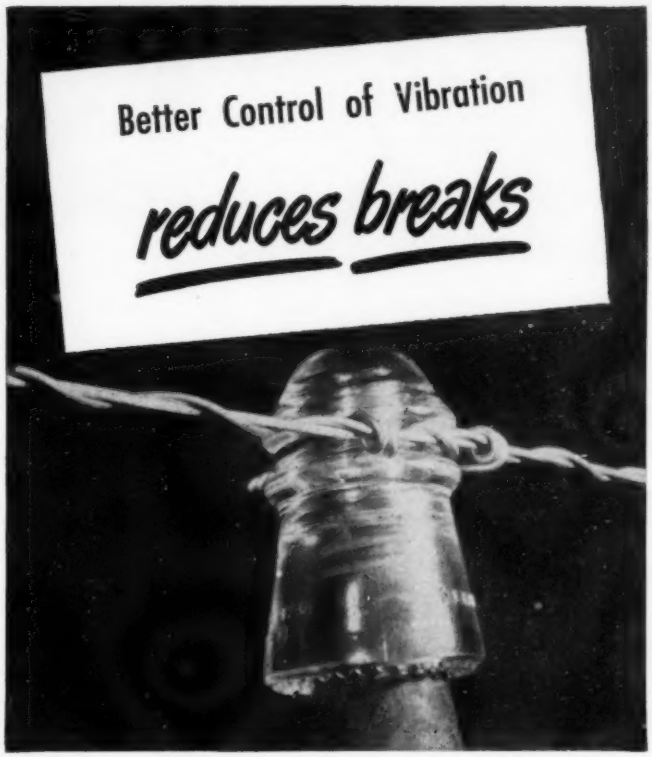
Go Commercial

If it's 2-conductor receiver cord
. . . 2-, 3- or 4-conductor sub-set cords
. . . 3-conductor hand set cords
. . . in fact, any type of telephone cord
. . . Commercial can give you prompt delivery.
In service, Commercial Cords will prove their worth on every count. So, next time you order subscriber or operator set cords, go Commercial. You'll get . . .

ECONOMY • QUALITY • SERVICE

Commercial Cord
AND SUPPLY COMPANY, INC.
26 East Main Street
Clifton Springs, N. Y.

*Order by Code Number or Sample



THIS illustration shows U·S·S Amertel 135 Telephone Wire protected against vibration by an American Armor Rod and Tie.

Extensive tests in the laboratory and in the field have shown that these armor rods quickly dampen vibration and assure much greater life for the conductors.

The greater strength of U·S·S Amertel 135 and Amertel 85 permits much longer spans than are possible with B.B. grade wire. The number of poles can be cut in half for Amertel 135 with large savings in construction costs.

Comparison of Strength and Span Length

U·S·S Amertel	Minimum breaking strength—No. 12 B.W.G.	Heavy Loading Span Length
135 grade	1213 lbs.	350 feet
85 grade	793 lbs.	225 feet
B.B. grade	476 lbs.	150 feet

In addition to high strength, Amertel-135 and 85 wires have increased transmission efficiency at voice frequency. Write for complete engineering data.

AMERICAN STEEL & WIRE COMPANY, CLEVELAND · CHICAGO · NEW YORK
COLUMBIA STEEL COMPANY, SAN FRANCISCO
PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Look for this tag.
It is your assurance of highest quality wire.

AMERTEL-135 and 85
TELEPHONE WIRE
UNITED STATES STEEL

Engineering
Construction
and
Maintenance
of
Outside
Telephone
Plants

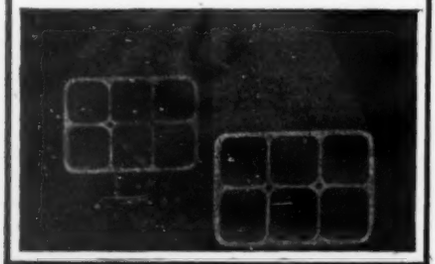
Let's discuss your problems
We can handle any job —

NEALE
CONSTRUCTION CO.
Topeka, Kansas

SINCE 1889
NATCO
CLAY CONDUIT

The proved and standard Protection for Underground Telephone Cables.

Cheapest in the long run. Highest quality and a full line of shapes.



National Fireproofing Corp.
202 E. Ohio Street, N. S.
PITTSBURGH, PA.

EFFICIENCY:—"The efficiency of a huge corporation is a thing to admire. Most of us have been filled with awe when we think of the millions of automobiles General Motors assembles, or the millions and billions of match sticks that are hewn from forests of trees.

"Yesterday our staff members found that sometimes a little bit of human weakness shows through the cold walls of efficiency. The Interstate Telephone Company slipped to meer man's level for a half-minute.

Wanting desperately to get in touch with a Ski club member in Science hall who was attending the Ski movie, a staff member dialed information. 'Is there a pay phone station in Science hall?' she asked the operator.

"The dignity of the corporation was forgotten with the operator's answer, 'Gee, I don't know. Don't know how a person would find out. You could run over and see. I know the Ad building has one.'" —**Moscow, Idaho, Argonaut.**

• • •

19,000 CAPITALISTS:—"The annual report of the Illinois Bell Telephone Company declares that 19,000 IBT employees are purchasing shares in the company. Of all eligible employees, 53 per cent are becoming stockholders. They are purchasing 107,000 shares of stock in AT&T, parent corporation of the Bell System.

Who are these 19,000 capitalists? Are they all dignitaries, seated behind glass-topped desks?

Obviously not, since more than half of all employees (excluding newcomers) are among the share-purchasers. All grades of worker at IBT from president to office boys are participating.

When lefties and laborites inveigh against the supposedly enormous profits of industry, these are the objects of their tirades: clerks, department heads, telephone operators, linemen, repairmen, bookkeepers.

These are the ogres—these are the folks who fatten on the workman's toil!

Hereabouts, AT&T stockholders include not only the 19,000 Illinois Bell Company employee-capitalists, but 50,000 other Illinois shareholders plus 14,340 employees of the Western Electric Co. in the Chicago area—a total of more than 83,000 bloated plutocrats, who, oddly enough, also happen to be housewives, electricians, stenographers, installation men—a pretty fair cross-section of these United States.

These are the capitalists."—**Chicago, Ill., Journal of Commerce.**

• • •

UNDERSTANDING:—"I do want you to know that Congress is not unaware of the problems which the nation's telephone companies, particularly small Independent telephone exchanges, face. After all, you are a **public utility,** whose rates, whose services, whose operating practices and expenses are subject to close scrutiny and regulation by public officials. You are faced with the problem of competing for labor in the labor market and of paying wages which you can stand under your present financial set-up.

I believe that the Congress should be very careful in attempting to establish uniform standards for these 48 varied states. We know that the cost of living varies tremendously in rural and urban areas and among different states, and it is difficult, if not impossible, for some bureaucrat in Washington to decide just what the wage standard should be in Madison, or Milwaukee, or Racine, or Oshkosh, or Appleton, or Green Bay, or Superior, or anywhere else in our State." **—Senator Alexander Wiley, (R. Wis.), before annual convention of Wisconsin State Telephone Association.**

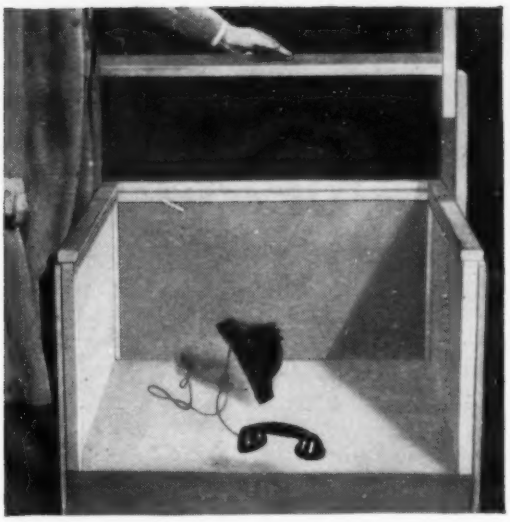
We expected this...

TELEPHONES must withstand continued hard usage. To make sure that they will, Western Electric engineers test each day's production of subscriber sets at the factory to insure that standards of ruggedness are met.

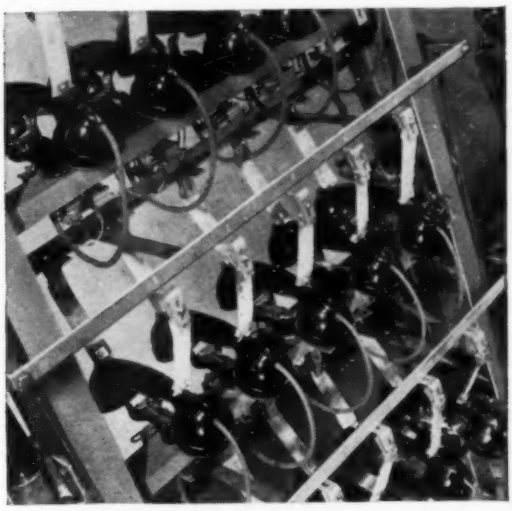
Other subscriber sets, taken from the production lines, are sent to Bell Telephone Laboratories where, in addition to the three tests pictured, handset handles and transmitter and receiver caps are checked for mechanical strength, dials are analyzed to determine noise levels, the pressure required to operate switchhooks is measured, feet of combined sets are checked to make sure they won't scratch or stain subscribers' furniture . . . and many other important details are constantly watched.

Little wonder, then, that Western Electric telephones can take the rough treatment they get in years of service.

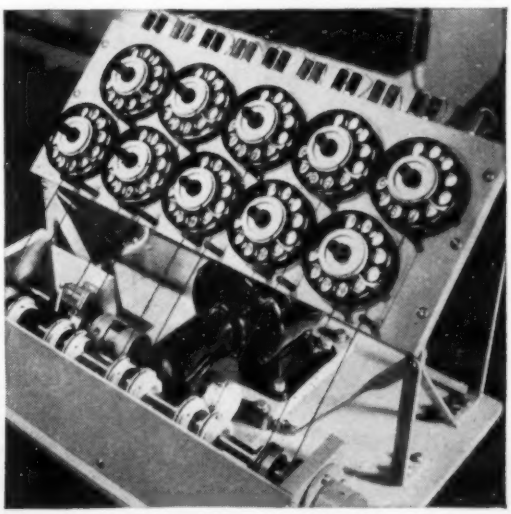
Western Electric
TELEPHONE APPARATUS AND CABLE



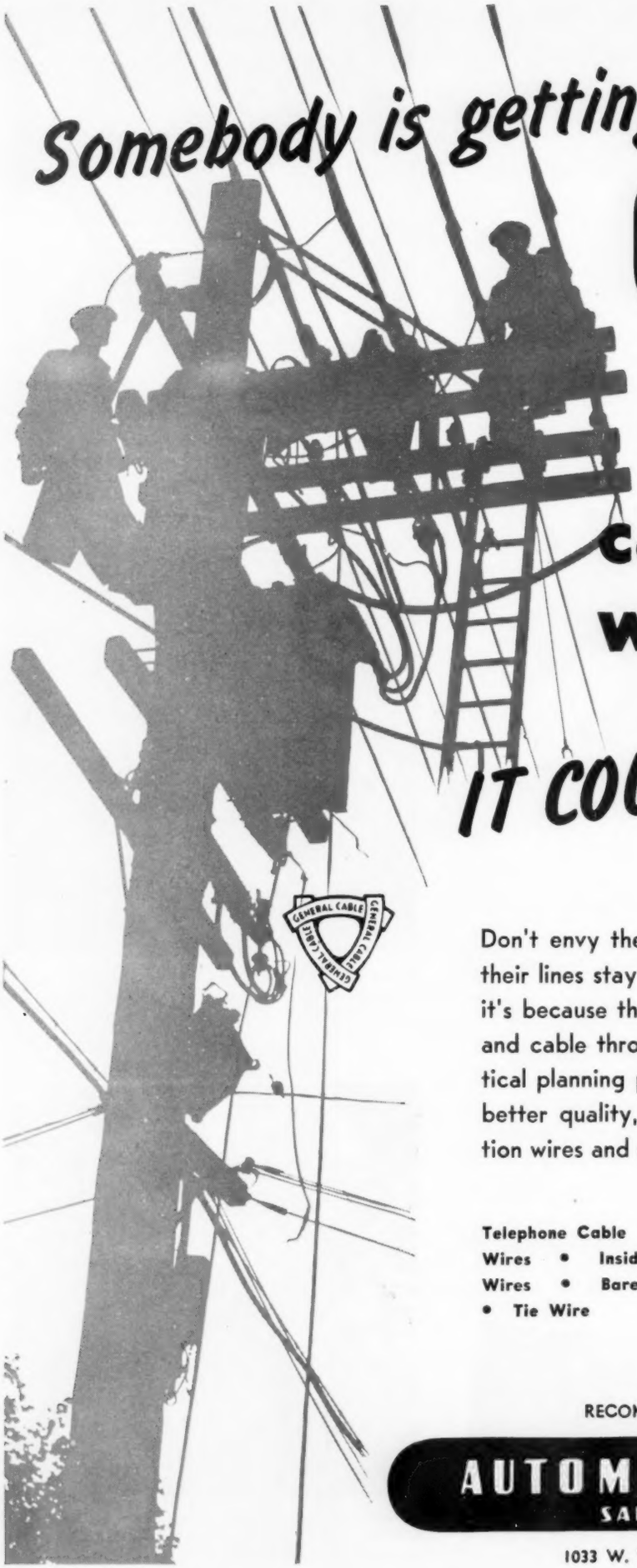
In this test, complete combined sets are dropped from a specified height onto a hardwood surface. Each one is dropped from 16 different positions.



These handsets are given a 1½" free drop 22,000 times overnight . . . equal to four years of normal usage. 20,000,000 of these test drops have been made.



Subscriber dials should be capable of at least one-half million operations. With this machine, dial life is checked at the rate of 40,000 dialings per day.



Somebody is getting cost-saving

General Cable

Communication Wires and Cable

IT COULD BE YOU!

Don't envy the "good luck" of neighboring companies if their lines stay up longer and give better service. Perhaps it's because they use General Cable communication wires and cable throughout their plants. Such far-sighted, practical planning pays big dividends in maintenance. Specify better quality, longer lasting General Cable communication wires and cable on your next order.

Telephone Cable • Drop Wires • Bridle Wires • Ground Wires • Inside Wires • Conduit or Duct Wires • Pothead Wires • Bare Line Wires • Lashing Wire • Bonding Wire • Tie Wire

RECOMMENDED AND DISTRIBUTED BY

AUTOMATIC ELECTRIC SALES CORPORATION

1033 W. VAN BUREN ST., CHICAGO 7, ILL.

Dirty Contacts Give Wrong Numbers

Even Microscopic Dust Can Hamper The Efficient Operation Of Telephone Exchange Equipment

Dust and dirt are natural enemies of complex telephone equipment.

But now there is a way to get rid of dirt in telephone exchanges . . . by removing it from the air *electronically!*

A Raytheon *Precipitator* will remove airborne dust, smoke, oil mist, pollens and other particles as fine as 1/250,000th of an inch.

Investigate the Raytheon *Precipitator* as a way to cut maintenance cost, improve equipment performance, increase employee comfort and health.

For Detailed Information Write For Bulletin DL-P-503

RAYTHEON

RAYTHEON MANUFACTURING COMPANY

WALTHAM 54, MASSACHUSETTS

Industrial and Commercial Electronic Equipment, Broadcast Equipment, Tubes and Accessories

Excellence in Electronics

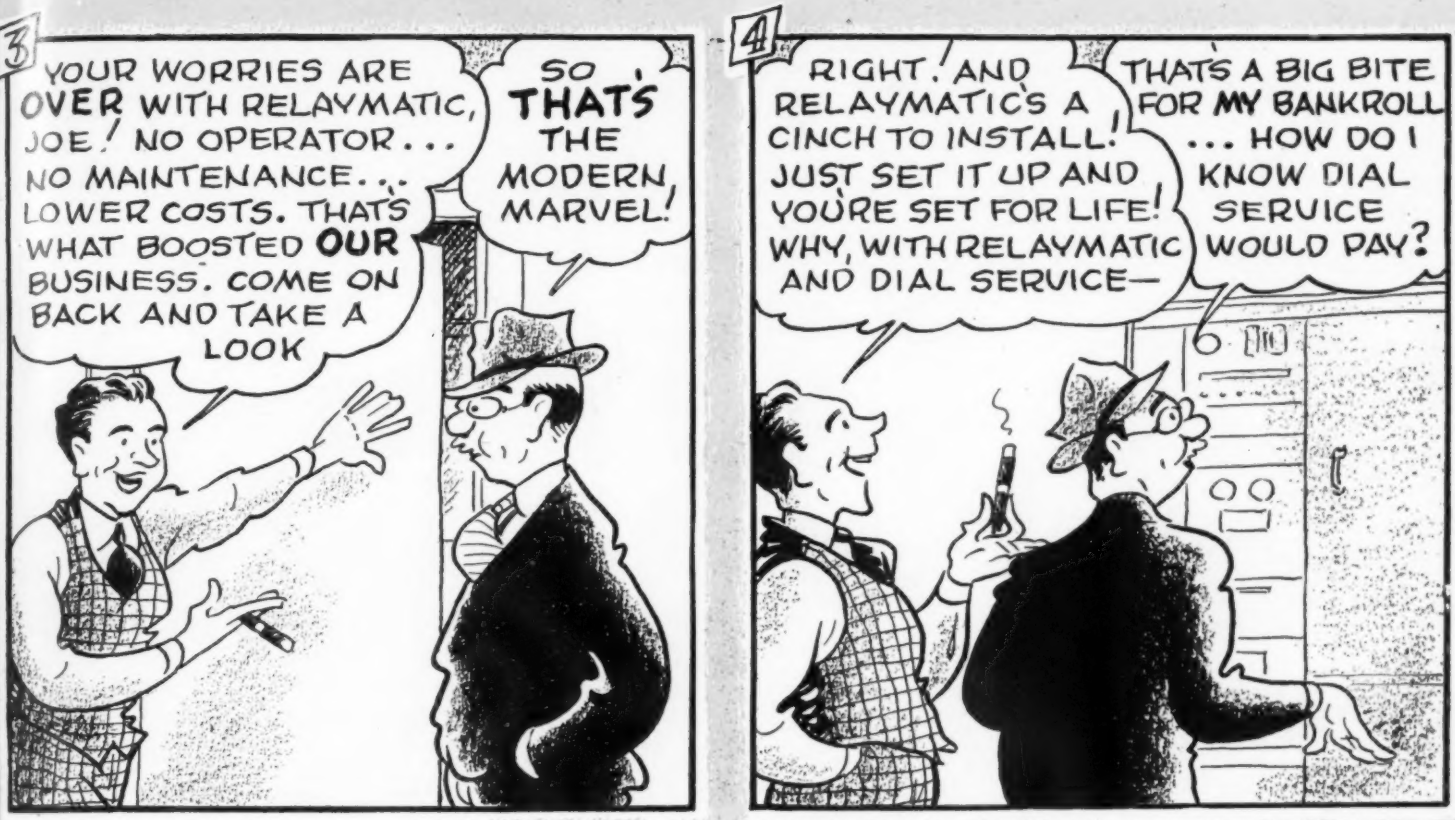
SALES OFFICES: ATLANTA BOSTON CHICAGO CLEVELAND DETROIT NEW YORK WASHINGTON

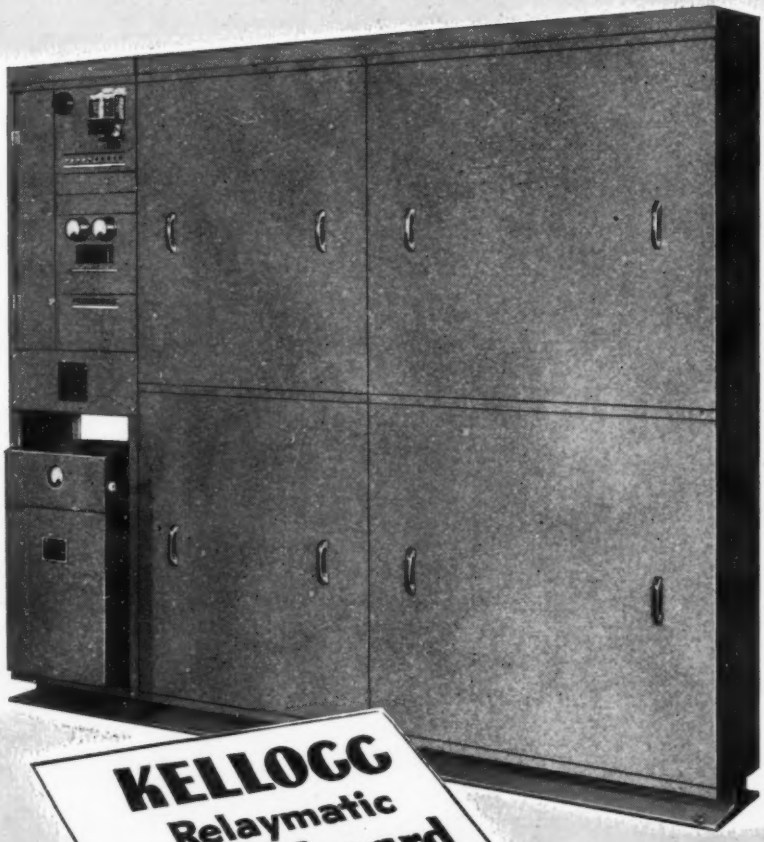
EXPORT SALES AND SERVICE IN FOREIGN COUNTRIES: — Raytheon Manufacturing Company, 50 Broadway, New York 4, N. Y., WH. 3-4980

THIS COULD BE

IN A SMALL TELEPHONE CO. OFFICE
1
WHY THE GLOOM, JOE? YOU LOOK LIKE YOU'VE LOST YOUR LAST FRIEND!
I'M SURE GOING TO LOSE SOME FRIENDS IF I RAISE SUBSCRIBER RATES AGAIN. AND YOU OUGHT TO SEE MY COSTS CLIMB!
2
WITH THAT ANTIQUATED SYSTEM OF YOURS, YOU CAN'T EXPECT TO KEEP YOUR HEAD OUT OF WATER! WHY DON'T YOU INSTALL A NEW RELAYMATIC SWITCH BOARD FOR DIAL SERVICE?
LET'S NOT JOKE, JIM. I'VE GOT ENOUGH TO WORRY ABOUT ALREADY
5
BEST INVESTMENT YOU COULD MAKE, JOE! RELAYMATIC GIVES ALL THE MODERN SERVICE, AND IS SURE TO NET YOU NEW SUBSCRIBERS. COSTS LESS TO SERVE 'EM, TOO
THAT'S FINE...BUT JUST HOW DO I PAY FOR ALL THIS?
6
CONTACT KELLOGG, JOE! THEY'LL HELP TO PUT YOU BACK ON THE PROFIT-PATH IN NO TIME
YOU'RE MAKING SENSE, JIM! KELLOGG'S AN OUTFIT THAT UNDERSTANDS THE PROBLEMS OF INDEPENDENT TELEPHONE MEN LIKE US
MILT YOUNGREN

YOUR STORY!


3
YOUR WORRIES ARE OVER WITH RELAYMATIC, JOE! NO OPERATOR... NO MAINTENANCE... LOWER COSTS. THAT'S WHAT BOOSTED OUR BUSINESS. COME ON BACK AND TAKE A LOOK
SO THAT'S THE MODERN MARVEL!
4
RIGHT! AND RELAYMATIC'S A CINCH TO INSTALL! JUST SET IT UP AND YOU'RE SET FOR LIFE! WHY, WITH RELAYMATIC AND DIAL SERVICE—
THAT'S A BIG BITE FOR MY BANKROLL ... HOW DO I KNOW DIAL SERVICE WOULD PAY?



KELLOGG Relaymatic Switchboard

Here's Why Relaymatic Cuts Cost, Boosts Earnings!

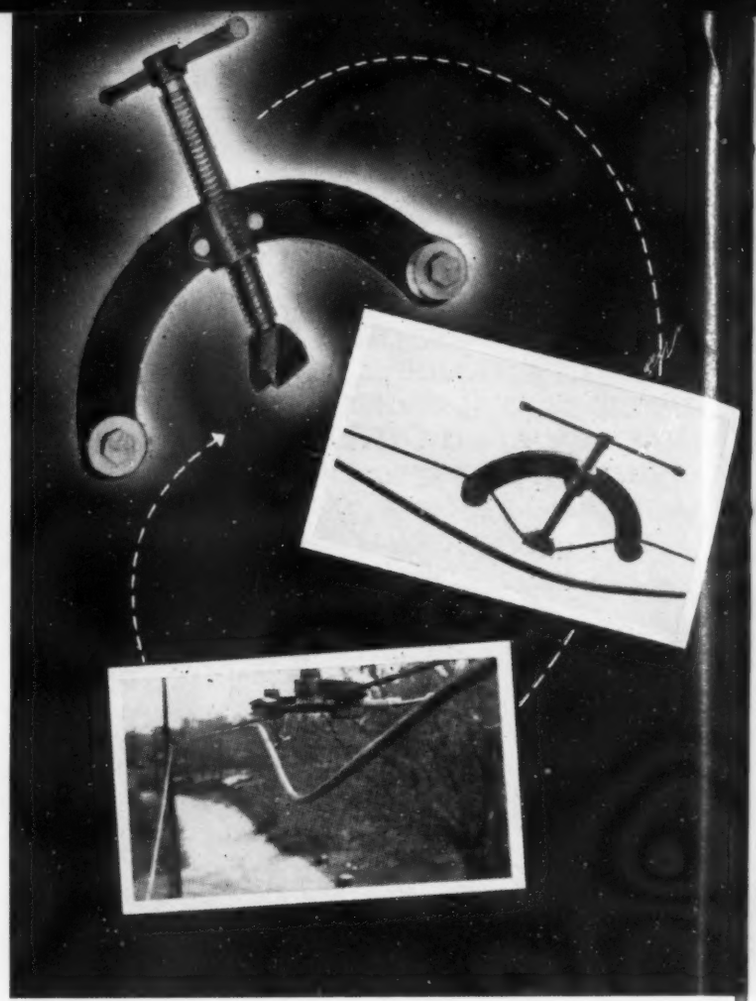
Relaymatic installation costs are low because it takes less time to install! Circuits are fully-wired, tested and connected. All lines are wired to terminal strips to facilitate cabling. And Relaymatic's designed for fast inspection, too! Cuts maintenance costs because it uses *relays only*—nothing to need adjustment or wear out. Relaymatic boosts revenue because it gives all the improved modern services, and functions dependably under all conditions.

KELLOGG SWITCHBOARD & SUPPLY CO.
6650 SOUTH CICERO AVENUE • CHICAGO 38 • ILLINOIS

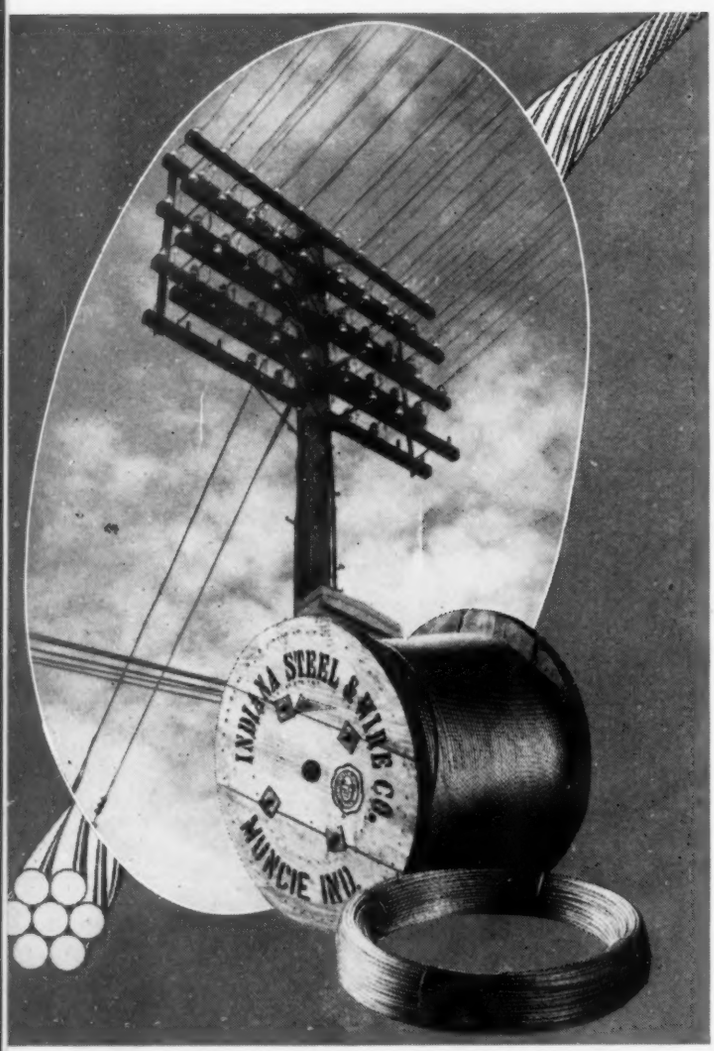
The Satisfaction Lasts
When You Buy Products

Recommended and Guaranteed

by KELLOGG



Time and Labor Saver. The "Little Giant" Slack Puller is ideal for taking up and holding slack in spun messenger strand and cable preparatory to making cable repairs. With it, one man does in 54 seconds what formerly took two or three men 15 minutes to do. Made by CABLE SPINNING EQUIPMENT COMPANY, it cuts insulation damage.



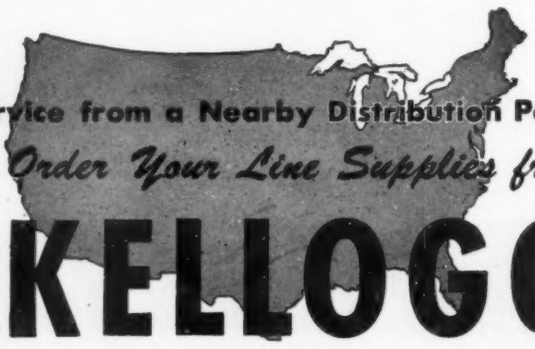
The Time-Tested Strand—Lasting protection against corrosion is provided in Indiana Crapo Steel Strand, thanks to its heavy, ductile, tightly-adherent coating of zinc, applied by the famous Crapo Galvanizing Process. This, plus rugged strength, assures long life, low maintenance. Use Crapo Steel Strand, made by INDIANA STEEL & WIRE CO.

There's three-way satisfaction when you concentrate purchases of line supply and construction materials at a single, responsible source: (1) The *quality* is right—all products are backed by the famous Kellogg DOUBLE GUARANTEE; (2) The service is right—orders are intelligently handled by experienced people; (3) *Delivery* is right—orders are shipped from the nearest of over 100 strategically located distribution points.

KELLOGG SWITCHBOARD & SUPPLY COMPANY

Branch Offices: Kansas City, San Francisco, St. Paul, Los Angeles

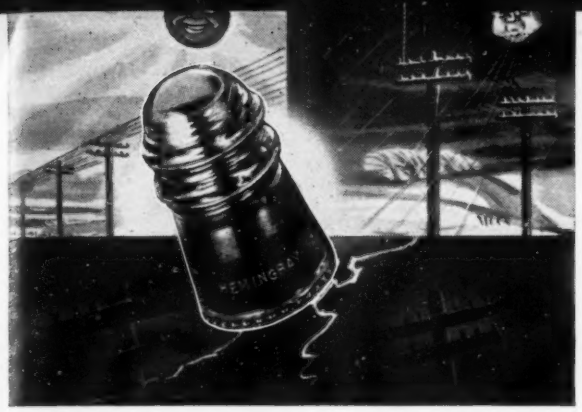
Factory and General Offices: 6650 S. Cicero Avenue, Chicago 38



For Service from a Nearby Distribution Point

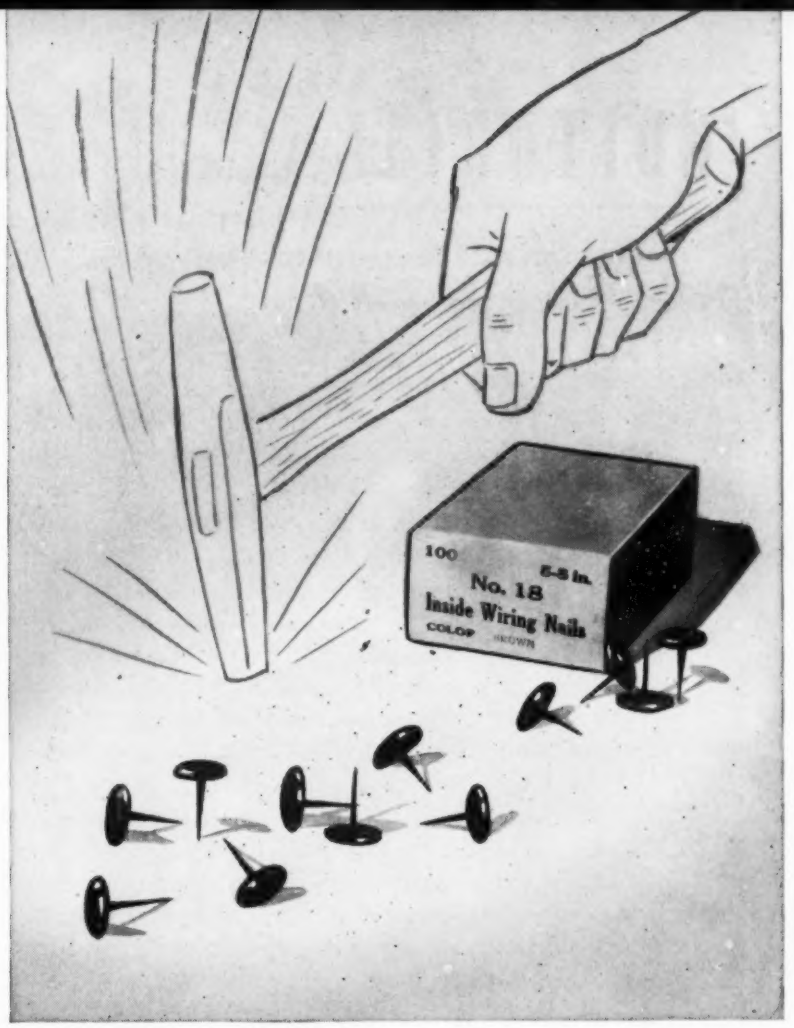
Order Your Line Supplies from

KELLOGG



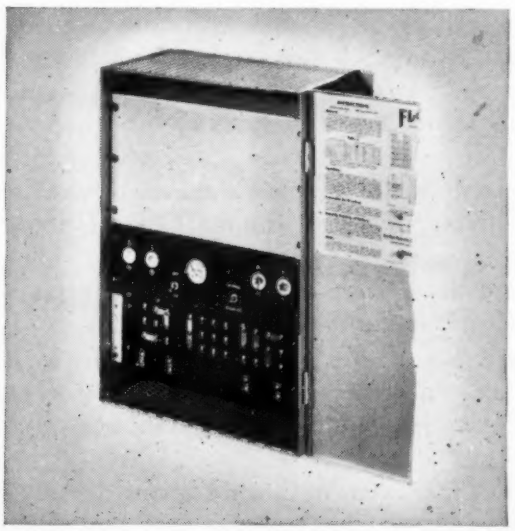
Dependable—In Any Weather! Hemingray Insulators are made to withstand severest weather. They defy rain, snow and sleet. Made by the AMERICAN STRUCTURAL PRODUCTS CO., many of these famous insulators are still giving dependable service after 20, 30 and even 50 years.

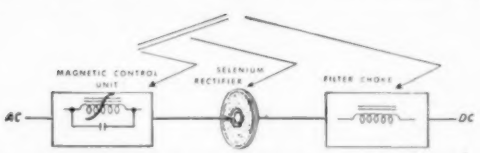
Star Performer! Copperweld Line Wire's thick, rustproof copper covering, Molten-Welded to a strong alloy-steel core, gives highest possible conductivity, combined with great strength. For a top-performing line wire, insist on Copperweld; made by the COPPERWELD STEEL CO.



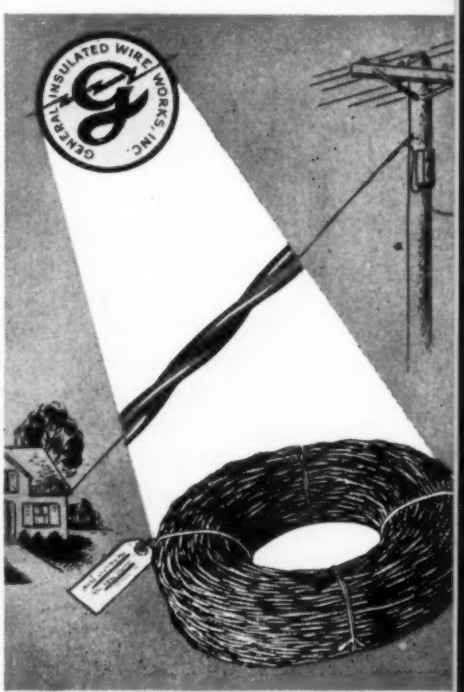
Why do it the Hard Way? Making neat installations is *easy*—when you use Rhodes Telephone Wiring Nails! That's because they're especially designed for telephone work, and their quality is insured by rigorous driving, bending, withdrawing and immersion tests. Made by M. M. RHODES & SONS CO., in several colors and pin-lengths.

Solves **Battery Problems!** Gould Planté and Floté Batteries have features that cut maintenance and charging costs and lengthen life. These famous batteries, made by GOULD STORAGE BATTERY CORP., are designed to meet the specific needs of telephone men.





No Moving Parts to Wear! The Floral automatic battery charger consists of a phase-splitting transformer and a dry-disc rectifier. Delivers correct trickle charge at constant voltage. Write LORAIN PRODUCTS CORP., Lorain, Ohio, for Bulletin No. 137.



Increase Drop Wire Life 30% by using GENERAL INSULATED WIRE WORKS Bronze Drop Wire. This high-conductivity wire is drawn of solid non-corrosive bronze and covered with Neoprene—the insulation that can take punishment. Flexible—easily handled.

EDITORIAL

Money From Home

MANY of you who read this will remember the story of the fellow who roamed the earth seeking his fortune, then came home and found it by striking oil in his own back yard.

We're not going to propose that you drill for oil behind the telephone building—even though, in some places, that might not be a bad idea. Our subject, however, is financing.

Many Independent telephone companies are concerned about this subject. Prevailing extraordinary demands for telephone expansion make it necessary that a lot of new money be put into the telephone industry. The problem of where to get this new money at reasonable cost and on other reasonable terms is becoming more difficult. Speakers at recent telephone conventions have emphasized the fact that current demand for new capital in all utility industry —power and light as well as telephone—is becoming more and more pressing.

Another angle to the situation is this: A number of Independent telephone companies, taking advantage of the ready sale to institutional buyers and others, during the past several years, of bonds with low interest rates, have reached the point where additional bonds could not be issued without unbalancing their capitalization situation. Their need now is for additional equity investment in their business, which can come only from the sale of stocks. Such stocks are not ordinarily saleable to the type of institutional investors—such as insurance companies—that have been buying the bonds.

Northern Ohio Telephone Company, headquarters Bellevue, Ohio, has met this problem in a highly satisfactory manner. The president of this company, Col. Wm. C. Henry—a past president of United States Independent Telephone Association—is widely known throughout the telephone industry.

The Northern Ohio company has sold $1,200,000 par value of 4¼% Preferred Stock, at par, to its subscribers in the 51 cities and towns in which it operates. The entire selling job was done by mail; the sales were for cash, and the entire cost to the company, according to Col. Henry, was less than 1/3 of 1% of the par value.

The stock is of $100 par value per share, and is callable at $105 on any interest date. Sales were limited to 20 shares per purchaser. The only personal activities carried on in connection with the issue was that of informing each bank in the company's territory of the plan before the offering was made.

Since the offering was only to the company's subscribers, all within the state of Ohio, it was not necessary for the issue to be registered with the Federal Securities & Exchange Commission.

Northern Ohio company operated, at the end of 1947, about 43,000 stations. Space limitations do not permit us to detail here the assets, financial and earnings situation of the company, excepting to say that of course they were such as to justify this stock issue.

The point is that there is a market in many territories for the sale, on a favorable basis, of stocks, either common or preferred, of good Independent telephone companies. This is proven by the fact that other Independent companies have successfully sold such securities in their operating territories.

There are two schools of management thought about the advisability of customer-ownership of utility company stocks. Some managements feel that the customer-stockholder is more demanding as to service, expects preferential treatment, and so on. Others, on the other hand, believe the customer-owner is more tolerant of the company's service difficulties than the non-owner. The decision on this is one each management will have to make for itself.

The fact remains that there seems to be plenty of money, right at home, for investment in Independent telephone companies, on a sound and favorable basis, if the company's financial and earnings situation reasonably justified such investment.

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BUILT-TO-CODE Fully Equipped Motorized Units

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MOTORIZED UNITS
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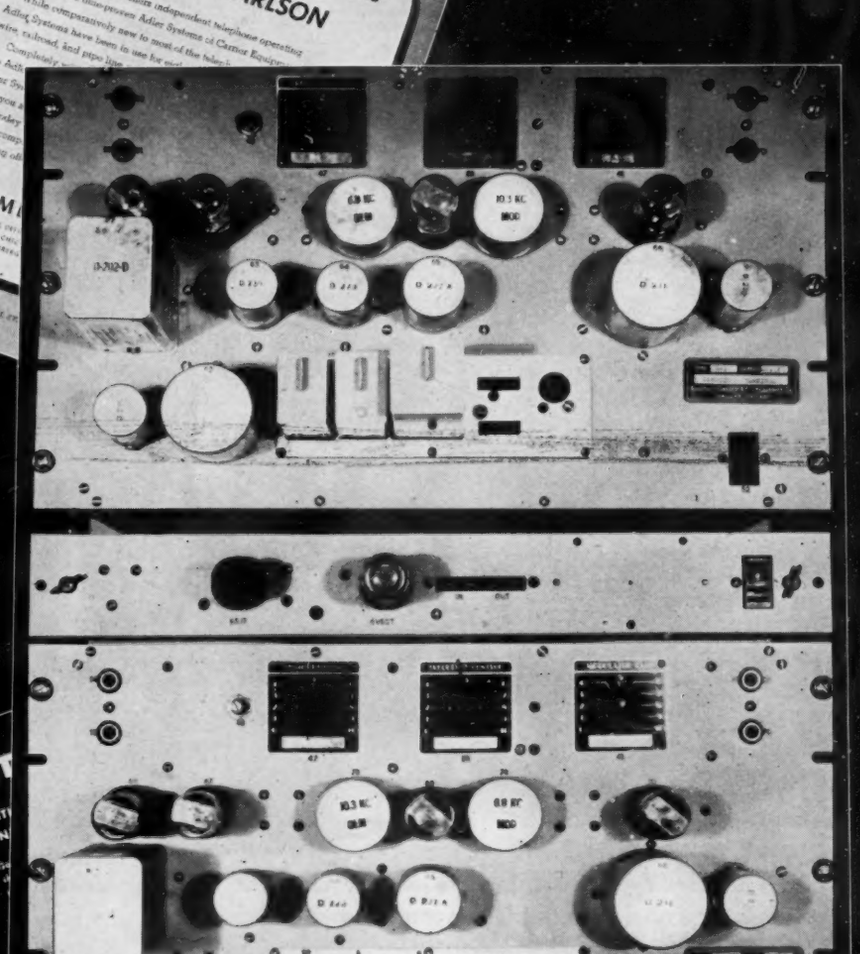
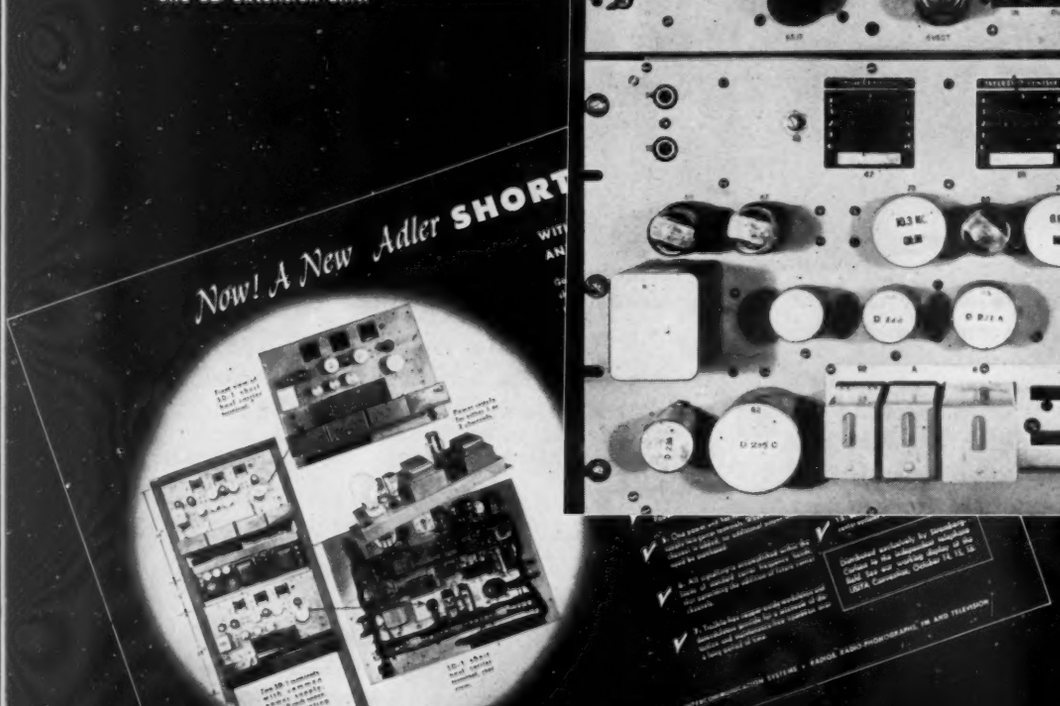
Announcing o

NEARLY TWO DECADES OF SERVICE BACK ADLER CARRIER EQUIPMENT
Time-Proved Adler Carrier Systems NOW OFFERED to the Independent Telephone Companies By STROMBERG-CARLSON
ADLER CARRIER SYSTEMS were First in

First announcement:
Stromberg-Carlson distributes Adler carrier systems; August 1946.



Front View: Two type SD Terminals and one SD extension unit.



First announcement:
Adler offers a short-haul carrier; October 1947.

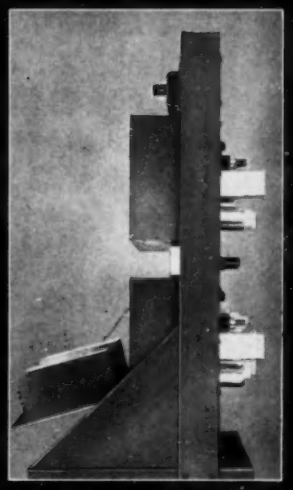
TELEPHONES, SWITCHBOARDS • SOUND EQUIPMENT, INDUSTRIAL AN NTER

g another **ADLER** first!

SD SERIES "B" TERMINALS

with extension unit, for short or medium haul

- Completely flexible. One basic terminal meets all conditions. SD extension unit increases range; 2nd and 3rd channels may be added as traffic grows.
- Universal signal circuit wired for either ring-down or dialing and supervision. Panel space required, only 11 inches.
- Revolutionary new circuit design, utilizing the efficient "Cathode Follower" principle.
- All filters fully and easily repairable in case of damage; condenser breakage doesn't mean discarding an expensive filter.
- Duplex telegraph channel for high speed printer operation can be superimposed over voice RD channel without interfering with speech channel.
- Entire system is "packaged" for quick installation and re-installation to meet peak loads.
- Accessory equipment available: side line filters, transfer filters, all frequency repeating coils, transformers, etc.



Side View: Two SD Terminals with filter-panel lowered on bottom terminal to show "In-A-Door" or "Murphy-Bed" feature.

Rear View: Two SD Terminals (hinged filter-panel of bottom terminal lowered to show "In-A-Door" feature).

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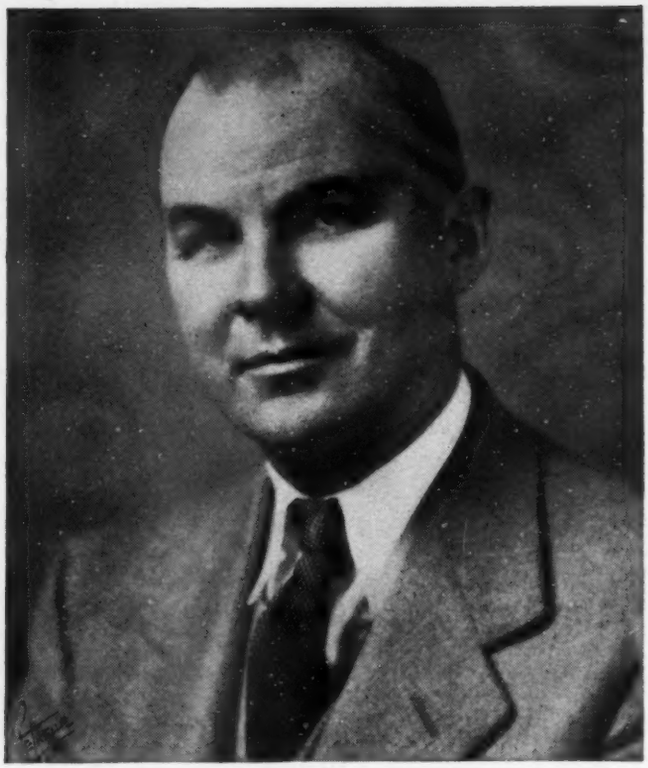
AN INTERCOMMUNICATION SYSTEMS • RADIOS, RADIO-PHONOGRAPHS, FM AND TELEVISION

SoundScriber announces DISCOPYING* ...for users of telephone recording



PRESIDENT
THE SOUNDSCRIBER CORPORATION
NEW HAVEN, CONNECTICUT

"I AM happy to announce SoundScriber's exclusive automatic DISCopying*. . . a new feature of the SoundScriber system of electronic disc dictation.

"Now...duplicate recordings of important telephone calls may be made. For example, a business executive in Boston receiving a long distance call from Denver, records the conversation on his SoundScriber. With SoundScriber DISCopying* he may make duplicate discs of this recording; mail one to his associate in Denver as a confirmation, or additional copies to his men in the field as a confidential record, or to department heads concerned. As many *voice-copies* as desired can be made *automatically*, right at your desk, on the instrument that takes your daily dictation, without interrupting routine office affairs or in any manner inconveniencing the user.

"I wish to stress the fact that this DISCopying* feature is *fully automatic*, utilizing SoundScriber's patented method of *embossing* the sound-groove *electronically* upon the lightweight, indestructible Vinylite disc, resulting in the clarity and accuracy of recording and reproduction for which SoundScriber is preferred. Because these SoundScriber recordings are *permanent*, the user retains an accurate *voice-copy* as positive evidence of the original phone conversation.

"In announcing SoundScriber DISCopying* I can assure telephone subscribers that they may enjoy the same advantages of efficiency, dependability and economy in duplicating important telephone conversations that they now derive from SoundScriber recording of routine correspondence . . . *including* original telephone recording."

• • •

*DISCopying—an exclusive SoundScriber feature enabling the user to make duplicate recordings from the originally recorded SoundScriber disc *right on the same instrument* that records your correspondence, with no appreciable loss of clarity.

SOUNDSCRIBER
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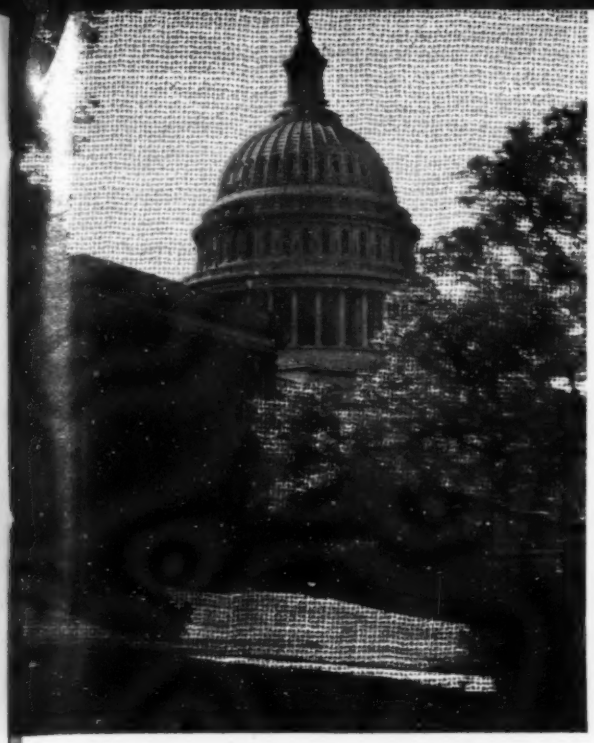
ELECTRONIC DICTATING AND RECORDING EQUIPMENT



Telephone ENGINEER and MANAGEMENT
THE NATIONAL TELEPHONE MAGAZINE

WASHINGTON Bureau REPORTS

BY ROLAND DAVIES and FRED HENCK

Labor

STABILIZATION of the telephone labor scene, at least for a year, appears assured as a result of actions of various telephone workers' unions in reaching contractual agreements.

Settlement of the most-publicized labor dispute, between the Long Lines Department of the American Telephone & Telegraph Co. and the American Union of Telephone Workers (CIO) came when the parties reached an agreement early in June when a contract providing for no wage increase was signed. The pact is for 21 months' duration, with either party permitted to reopen for wages during the life of the agreement.

Meanwhile, divisions of the Communications Workers of America, the largest telephone labor group, have established a pattern of three-year agreements and many of the CWA groups have signed up. The pacts generally call for wage reopening at the end of the first and second years, with the documents expiring if no wage accord is reached.

The Long Lines agreement, reached after several days of intensive collective bargaining, obviates any necessity of action by the board of inquiry appointed by President Truman. The board had a June 8 report deadline, but was requested by the parties to obtain a 60-day postponement of the requirement so that the maintenance of dues membership proposal sought by the AUTW will have been voted upon by its 23,000 potential members among Long Lines employees in conformity with the voting requirement of the Taft-Hartley Act.

The CWA held its second annual convention in Spokane, Wash., this month, with President Joseph A. Beirne indicating one keynote of the sessions in a local broadcast address over a Spokane station before the convention began. Mr. Beirne urged an orderly telephone industry technological conversion program so that its impact upon telephone workers would be no more serious than is absolutely necessary. Mr. Beirne brought out that the CWA position is not in opposition to technological advances and improvements, but his union does wish to see the effects of such changes cushioned through adequate termination pay and full protection of seniority rights.

FCC Generally Upholds Companies' In Recorder Order

GENERALLY upholding the position of the U. S. Independent Telephone Association and the Bell System that the required tone warning devices must be furnished, installed and maintained by telephone companies, the FCC has issued its final order in the telephone recorder case.

Two remaining issues, the reasonableness of the Bell System's proposed rates for installing and furnishing the warning-connector unit, and the provisions made for sales demonstrations of recording devices, will come up when the telephone companies submit their tariffs, which must be filed by July 2 under the Commission's order to become effective not later than Aug. 2.

Another change made by the FCC, also at the instance of the telephone companies, was in revising the requirement on the frequency of occurrence of the tone signal to not less than 12 seconds and not more than 18 seconds. It was understood that this will permit more economical equipment than the previous maximum spacing of 15 seconds.

In reversing its former decision, the FCC declared flatly that the "automatic tone warning device shall be furnished, installed, and maintained by the company or other organization responsible for the furnishing of the telephone service . . "

The Commission, as it did in the previous order, left the door open for possible future developments in the art which would permit the employment of a tone warning signal with inductive recorders. The order requires that "in the case of a telephone recorder physically attached to the telephone line, the equipment necessary to make such physical connection, including the automatic tone warning device, shall be provided, installed and maintained by the company or other organization responsible for furnishing of the telephone service."

Since a paragraph left unchanged from the previous order provides that recorders must be capable of being physically connected or dis-

(Please turn to page 69)

Fig. 7—Taking spinner around pole.

Modern Aerial Cable Construction

By G. A. KLEIN
VICE PRES. & GENERAL MGR.
Nebraska Continental Telephone Co.
Columbus, Neb.
(A Gary Group Operating Company)

This is the third article of a four-part series on aerial cable construction. In previous issues Mr. Klein discussed building the pole line and placing the suspension strand. He presents here a description of the actual placing of the cable itself, by the "spinning" method.

At points of unbalanced strain, such as where the cable changes size or, occasionally, near dead ends where standard anchorage cannot be secured, false dead ends are used. They involve anchoring a straight run of strand without cutting it, and are made in the following way: An angle-eye bolt is installed through the center of the pole, in line with the lead and level with the strand. A down guy is attached on the angle end of the bolt, and a thimble-eye nut is placed on the other end. A short piece of strand is looped through the thimble and each end is fastened, under strain, to the supporting strand with a three-bolt clamp. The short end of the loop is fastened with the three-bolt 12 inches from the pole and the long end is fastened at a point 40 inches from the pole.

Placing the suspension strand is a major subdivision of aerial cable construction. In this series we have considered such points as characteristics of various strengths of strand, use of three-bolt cable suspension clamps and reinforcing straps, clearances between the strand and power conductors and between the strand and roads and railroad crossings, transporting cable and messenger reels, dead ending the strand, splices in strand, grips for pulling the strand, methods of de-

termining proper tension (oscillation test and dynamometer readings) crossovers, and false dead ends.

We are now ready to approach the final problem of aerial cable construction: placing the cable.

WITH THE SUPPORTING strand properly in place, with trees trimmed and obstacles eliminated, the run is ready for the placement of the cable. Some companies still place cable in rings; however, this is a method which has been in use for many years, thoroughly familiar to most telephone construction men. Consequently, little could be offered here which would prove helpful.

This article deals only with the method of attaching the cable to the strand by means of lashing wire or, as it is commonly called, spinning the cable to the strand. There has been a more or less general change on the part of most companies within the last few years to spun cable. This method eliminates ring cutting, and shows very little evidence of wear between the spinning wire and the cable. In addition, this manner of suspension tends to reduce the longitudinal movement of the cable, thus eliminating much of the trouble caused by the bowing often present in rung cable. As a further advantage, in many cases cable can be spun with less labor cost than it can be placed in rings. This is especially true when the run is clear enough of obstructions that the cable can be spun directly from the reel without the necessity of pulling it into place endwise through temporary rings.

The method consists essentially of attaching the cable directly to the strand by means of a lashing or spinning wire which is wound spirally around both the strand and cable. This attachment is usually made with a machine called a cable spinner, although it is quite possible to spin the cable by hand. The wire is usually .091″ in diameter and comes in spools some 325 feet in length.

JUST AS WAS the case in placing the suspension strand, a cable reel trailer of some type is desirable for transporting and handling the cable. In Wisconsin the writer recently had a part in developing and building a trailer that has proved very satisfactory for use with reels of cable weighing up to two tons and measuring up to 36″ in width by 72″ in diameter. The trailer was built at a cost of $175.00.

A used front truck axle and wheels were incorporated. The rest of the material, consisting mainly of channel iron, was new. No springs were employed, since we were willing to sacrifice any advantages from them in order to save weight and size. A photograph of this trailer and a diagram showing details of its construction are reproduced in the text (Figures 8 and 9). It has been used in placing some four or five miles of cables in many short runs and has paid for itself many times over.

The reels are loaded by upending the tongue, thereby lowering the rear of the trailer to the desired height so that the proper set of loading hooks can engage the reel shaft. The end of the tongue is fastened to the rear of a truck with a twelve foot chain and is pulled down by the truck. This raises the rear of the trailer with the reel in place. The truck is then backed to the end of

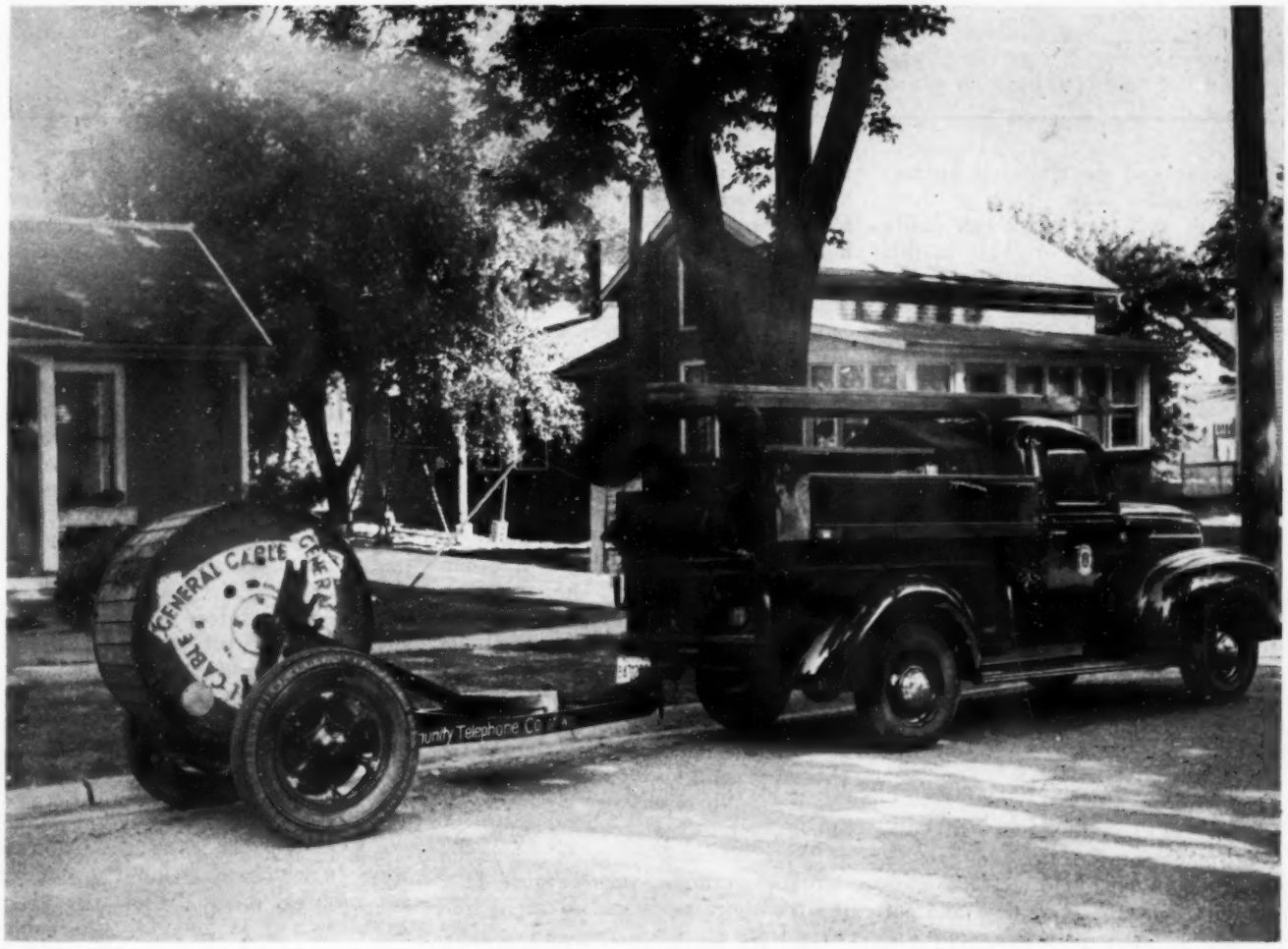


Fig. 8—Cable reel trailer and light truck.

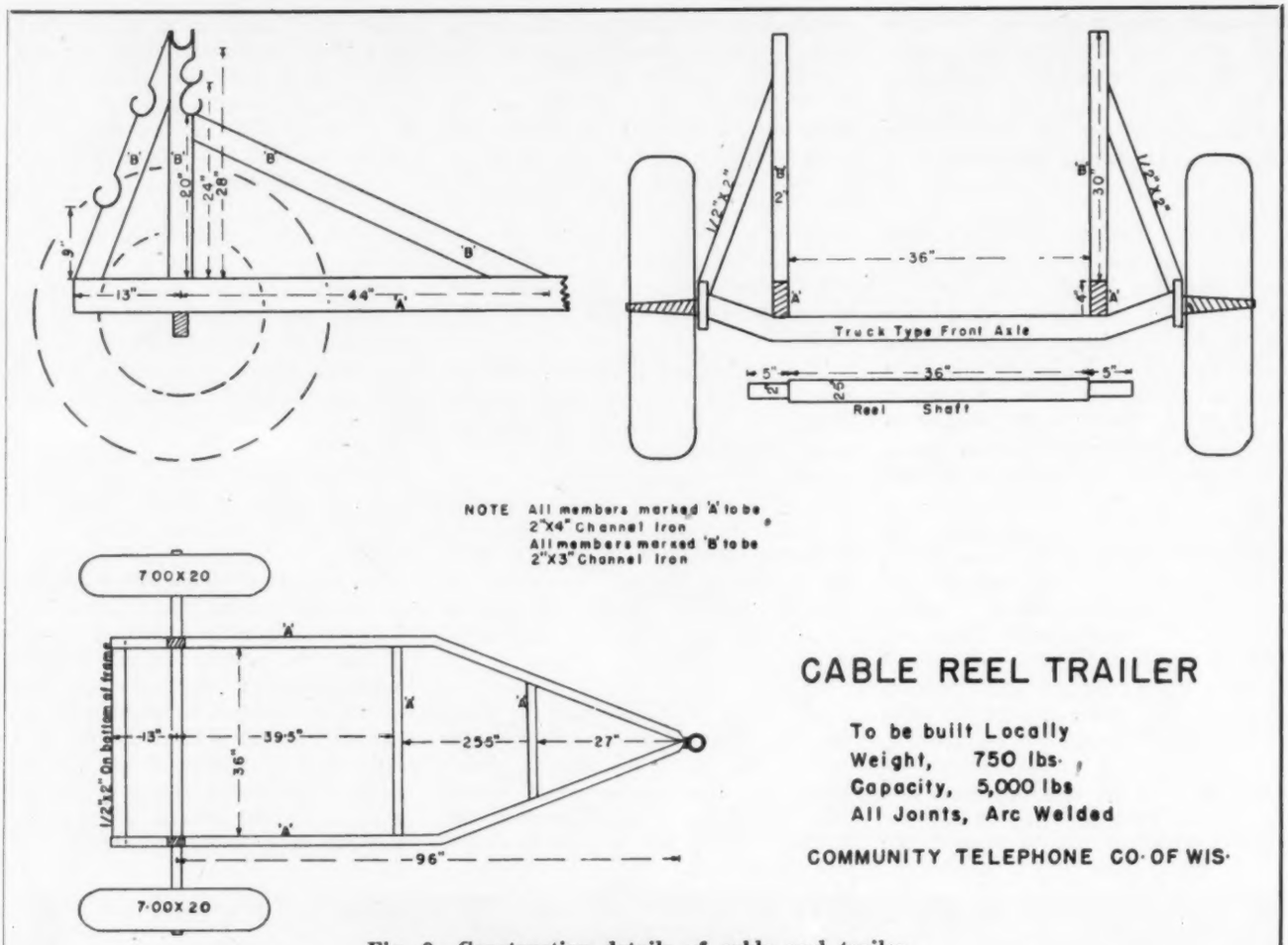

Truck Type Front Axle
Reel Shaft
NOTE All members marked 'A' to be 2"X4" Channel Iron
All members marked 'B' to be 2"X3" Channel Iron
7.00X20
7.00X20
CABLE REEL TRAILER
To be built Locally
Weight, 750 lbs.
Capacity, 5,000 lbs
All Joints, Arc Welded
COMMUNITY TELEPHONE CO. OF WIS.

Fig. 9—Construction details of cable reel trailer.

the tongue and the trailer is hitched in the regular way. Two or three men with a ½ ton truck can easily load a two ton reel of cable in this way in less than five minutes. The cable is then ready to be transported to wherever it is required. Several sets of loading hooks at various heights were built in this particular trailer so that different sizes of reels could be accommodated with none of them at a level any higher than necessary. This provided for easier loading and more nearly balanced riding.

Bell and large Independent companies use standard commercial reel trailers. These trailers are sufficiently strong and large to handle reels of any size and weight. They require bigger trucks, however, and the reels are usually loaded with the aid of a winch and line.

THERE ARE two types of spinning machines in common use in the Independent field at this time, both made by the same firm and employing the same principle. The first is known as a one-man spinner (Figure 10), and consists of a spinning head in which is mounted a preformed roll of wire. The spinning head is attached to a cable car which is propelled by the operation of a hand driven crank. As the car is moved along the strand the spinning head carries the roll of wire around the cable and strand and lashes the two securely together, with the wire forming spirals some thirteen inches apart. This spinner may also be propelled by pulling from the ground; however, it still must have a man riding in it or a weight of about a hundred pounds substituted in order to provide traction. The spinning head is equipped with a removable gate which permits the machine to be placed over the strand and cable at the beginning of each span, and withdrawn as each pole is reached.

The second type of machine is propelled only by pulling from the ground. No operator is required. It consists of a rotating cylinder called a spinning drum, which holds a roll of spinning wire (Figure 11). As the machine is pulled along the strand the drum revolves and spirally lashes the cable and strand together in the same manner as does the first machine. Two drives are used for the spinning drum. The first comes from friction of the strand through a rubber cored strand wheel, the friction being controlled by an adjustable tension arrangement. The drive wheel is connected to the drum by sets of gears and a chain and sprocket. The second drive comes from the spinning wire as it leaves the machine. In so doing it passes over two rollers which engage a rubber friction wheel against the rear of the drum, causing it to rotate at the proper speed.

The above descriptions of the two machines are brief, since each machine carries with it a manual explaining at length its operation and care. Each type of spinner has its own particular merits for different spinning operations, but either can be used successfully for any of them.

THERE ARE THREE different ways in which to reel out the cable for spining it to the strand. The first method is to pull the cable

(*Please turn to page 62*)

(Left)—Registration desk at recent Wisconsin convention was hidden by crowd when photographer snapped this photo. (Right)—Wisconsin "Old Timers" W. E. Lawton, T. Sanderson, Fred Runkel, W. L. Smith and P. H. Weirich. (Photos by Bob Horne, Commonwealth Tel. Co.)

Manufacturers' and Suppliers' Problems

Continued shortages of materials and labor have hampered manufacturers' efforts to meet heavy demands of the industry.

By L. H. Warner
President, Automatic Electric Sales Corp.

Production Lags Behind Needs

I WISH IT were possible for me to tell you that the Independent telephone manufacturers and suppliers no longer have any serious problems and that production and the needs of the industry are once more back in balance. This not being the case, I am grateful at least for this opportunity to report such progress as has been made, and to tell you something of the difficult problems which still remain not only in the hope that it will promote a better understanding between the suppliers and the operating companies during these difficult times, but also, to provide you with the facts necessary to explain shortages of facilities to your subscribers and to those still waiting for telephone service.

You will all remember how, when the war ended, the whole country looked forward with great enthusiasm to an immediate resumption of civilian production. After four years of producing for war, we were finally going to be able to make all the things we had been waiting for, including telephone equipment. And we were going to make them on a scale never before reached in peacetime history.

It is now a matter of common knowledge that the goal we sought then has not yet been reached. In virtually all industry, production is still lagging behind needs. That is the situation which telephone equipment manufacturers, like most others, are still facing, and naturally you want to know why.

In the first place, both local and long distance traffic are today at the highest levels in all telephone history, and the continued growth in the number of applicants for service plus the steadily increasing trend toward conversion to automatic service have resulted in a demand for new telephone equipment unprecedented in the history of our industry.

Continued shortages of materials and labor and the disrupting effects of strikes in the basic industries have hampered all manufacturers in their efforts to expand production in order to meet the abnormally heavy postwar demand for their products. The situation has been even more acute in our industry due to the fact that we are dealing largely in a specialized product requiring individual job engineering for each specific installation. We discovered very early in our efforts to expand production that purely aside from the generally recognized and accepted shortages of basic materials and labor, expansion in our industry had to be geared primarily to our ability to engineer each order on an individual job basis.

Training Programs Disrupted by War

COMPETENT telephone equipment engineers are not made over night. It has been our experience that a minimum of five years are required to train and develop a telephone equipment engineer to the point where he can engineer a central office installation without assistance, and with confidence that the job is soundly and accurately planned to meet the customer's needs. Prior to the war, we were able to provide normal replacements for our engineering staff by means of a well planned training program under which we took into our organization each year a group of young engineers just out of the universities and colleges and trained them over a period of years to the point where they would be able to fill vacancies created by deaths, retirements, and other causes. This training program was completely disrupted by the war with the result that our engineering department is now understaffed just when the need for experienced equipment engineers is greatest, and the most difficult problem in all our efforts to speed

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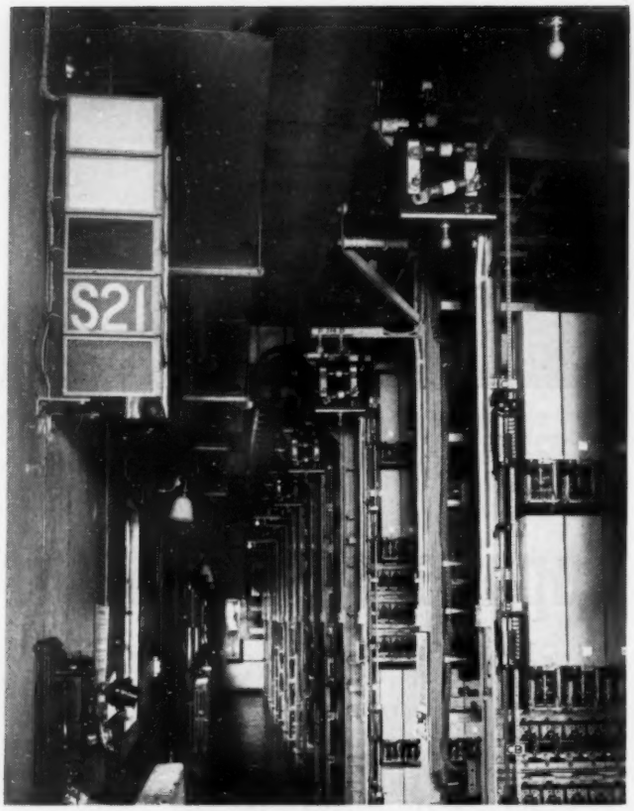
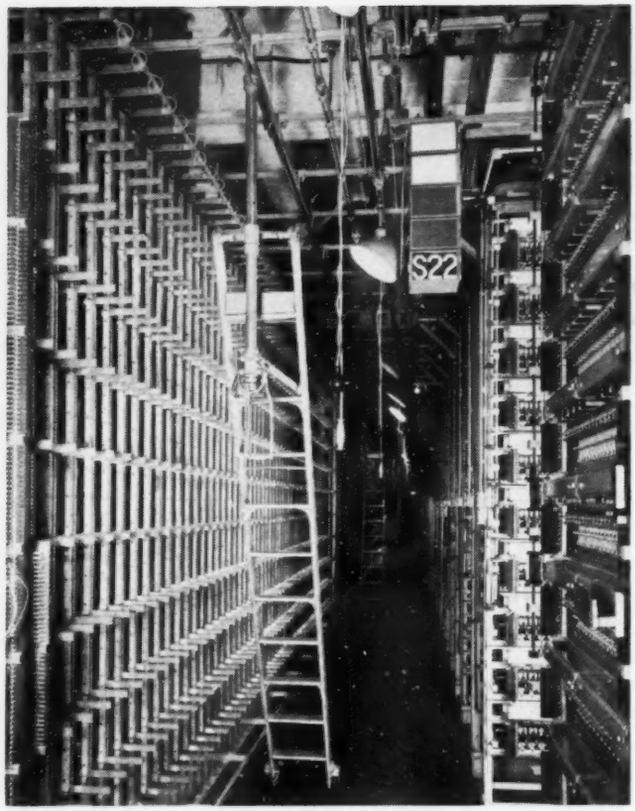


Group fuses, bus bars and local rack fusing of Monarch director exchange in the London automatic telephone area.



Typical apparatus gangway showing fault indicating panel of the new Monarch director exchange, London.

The Monarch Director Automatic Exchange, London

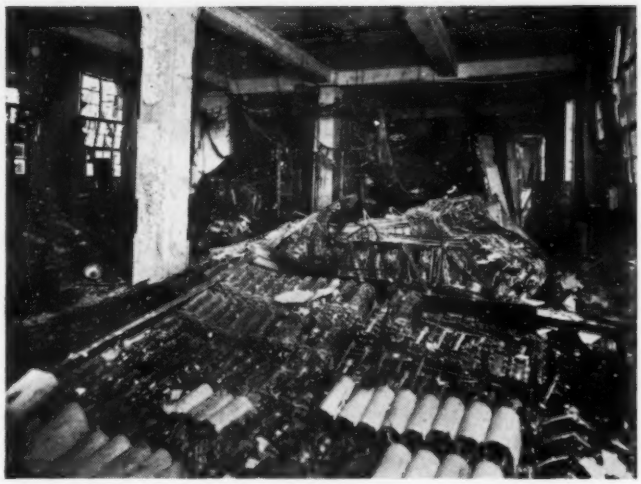
Reopening of Monarch director exchange marks return of Wood Street building to communications' field.

ON SEPTEMBER 13th, 1947, the new Monarch director exchange was cut into service in the London automatic telephone area. This event, which before the war would have attracted little attention in a city whose automatisation plans were proceeding so rapidly that no fewer than 100 exchanges of the Director type had been brought into service between the years 1927 to 1937, today has a special significance because the occasion marks the re-entry into the field of telecommunications of the Wood Street building which in 1939 housed three automatic exchanges with a capacity of 16,500 subscribers' lines and 7000 junctions. The story of this building during the war was typical of many automatic exchanges in Great Britain and its reopening justifies an outline of its history and a description of the equipment insofar as this is representative of the trend of British Post Office policy for future installations.

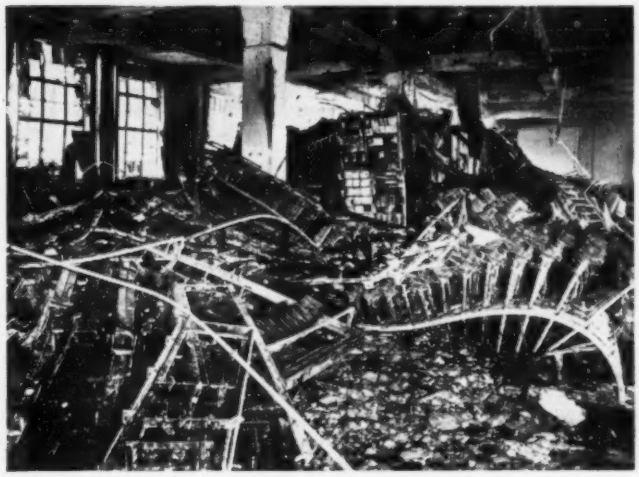
The Wood Street building was completed in 1929 and lies in close proximity to St. Paul's Cathedral. At the opening date the structure housed two automatic exchanges. Metropolitan and National, a third exchange, London Wall, being due for completion at a later date. The building was one of the largest of its type in the British Empire, comprising six floors and a basement and was equipped throughout with apparatus of the Strowger channel type incorporating the director system; and the test room, occupying the whole of the first floor, was the largest in the British Isles.

Exchange Functioned Until Dec. 29, 1940

THE EXCHANGES continued to function until Sunday, December 29th, 1940, a date which will long be remembered for it was on this night that the Luftwaffe struck is most devastating blow at the heart of London and transformed the city into



The main distribution frame in London's Wood Street building after fires started by incendiary bombs on December 29, 1940 destroyed the equipment.



Luftwaffe bombing on December 29, 1940 destroyed apparatus racks (above)—only equipment to escape destruction was the power plant.

an inferno of flame. 1,500 fires were raging simultaneously, six developing into major conflagrations, the largest of which covered an area of half a square mile in the vicinity of St. Paul's

The exchange building was quickly surrounded by numerous outbreaks but the staff continued working and was able to deal with the showers of incendiary bombs which rained down from hundreds of German aircraft whose main object it was to destroy the city by fire. At seven p.m. a high explosive bomb fell in the roadway outside the building.

The blast blew in all the windows, frames and doors, and worst of all, caused burning embers and debris of every description from adjacent buildings to swirl in through the openings and start numerous fires all over the structure. At the same time the water supply failed due to the numerous demands made upon every hydrant in the area. The order was therefore given for the staff to evacuate the building but four engineers and three firemen remained until after midnight endeavouring to put out the flames.

By this time the atmosphere was so hot that further efforts were impossible and they were obliged to leave through the only possible exit —the cable tunnel. The fire continued unchecked the whole of the next day and it was not until the following Tuesday that a survey could be made of the damage, when it was found that the only equipment to escape destruction was the power plant.

Service Restored Despite Continued Raids

DESPITE THE continuation of the raids and the difficulties imposed by the blackout, continuous day and night work was carried out by gangs of workmen brought in from all over the country in an endeavour to restore the service and they worked miracles of organization and improvisation at short notice. The structure of the building was sound but the equipment was entirely destroyed and 500 tons of scrap metal were removed by the simple expedient of hurling it through the gaping walls.

Of the 16,000 lines in service before the fire 5,000 were no longer required as the premises they served were destroyed or damaged. Within 10 days complete service had been restored to Government offices and important subscribers, the public being catered for with 100 telephone booths opened in the vicinity of the building and by the opening of a manual exchange which had previously been closed. By the end of March 1941 the amount of work accomplished included the laying of 7 miles of new street cable, 250,000 pairs of wires jointed in cables and the fitting of 300 miles of jumper wire.

With the termination of hostilities labour and materials could be diverted to the re-construction of the interior of the building and to re-equipping it with selecting apparatus, the original disposition of the plant being to a great extent retained. The present arrangements are as follows:

Basement—Stores and cable inlet chamber.

Ground Floor—Power and battery room. Headquarters P.A.B.X. 2000 lines.

First Floor—Test Room.

Second Floor—Monarch Exchange.

Third Floor—Metropolitan (10,000 lines, to be opened early 1949)

Fourth Floor—Manual Room (124 positions)

Fifth Floor—Apparatus racks for Overseas trunk exchange (cut into service Nov. 29th 1947)

(*Please turn to page* 52)

The Wood Street building (left) as it stands today. In view of war experience, special attention has been given to protection against fire risk.

"How To Do It" Suggestions

By Myrle Shafer

Use of Test Clip Holder

INSTALLERS and troublemen, who make frequent use of their hand test sets, ruin the test ends in a very short time by wrapping the leads around the handle of the test set and then snapping the test clips onto the conductors.

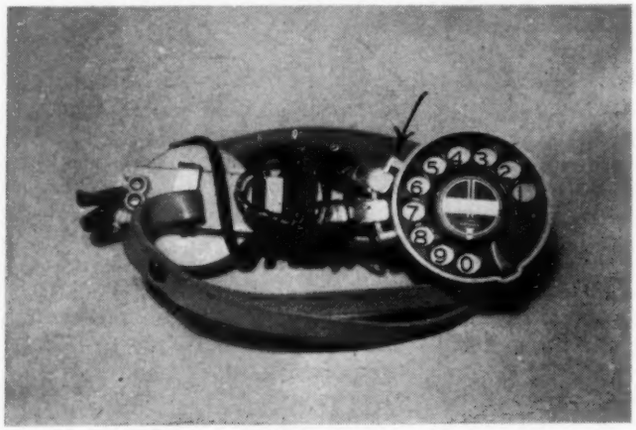


Fig. 1—Use of test-clip holder (indicated by arrow) to keep test clips off the leads of a hand test set.

One company has reduced the nuisance and expense of frequent replacement of the test leads by attaching a test clip holder to the dial guard of the hand set, as illustrated in Figure 1. This holder is machined from a brass slug about ⅜" wide by ⅛" thick, and is attached by small machine screws through holes drilled and tapped in the dial guard. The holder in no way interferes with the use of the test set.

"Rig" Facilitates Handling of Digging Equipment

THANKS TO Charles D. Ehinger, general manager of the Citizens Telephone Company, Decatur, Indiana, for sending in the following story of a recent adaptation which will be of interest to other telephone companies.

Mr. Ehinger states that the Citizens company has been using small, portable digging equipment for some time but "found that one of the main difficulties was lifting the equipment out of the hole after it had been dug." "Our men," Mr. Ehinger writes, "worked out the 'rig' shown in Figure 2 in order to speed up the work and to eliminate the back-breaking effort in lifting the equipment, plus dirt, from the hole.

"A small A-frame was mounted on the front of one of our combination trucks, with a completely different approach than the usual boom and winch line, in that no winch line is used and, in its place, was substituted an electrically powered hoist suspended from the top of the boom." Figure 2 shows the method used, and Mr. Ehinger has found it to be extremely satisfactory since it provides "push-button" control of an up or down movement by the digging equipment. He also states that his men have further discovered that two men can easily dig from 40 to 50 holes in an 8 hour period with this equipment and without the extreme fatigue that formerly accompanied the job.

If this method is of interest to any other telephone companies, Mr. Ehinger would be happy to pass along any further information they might desire.

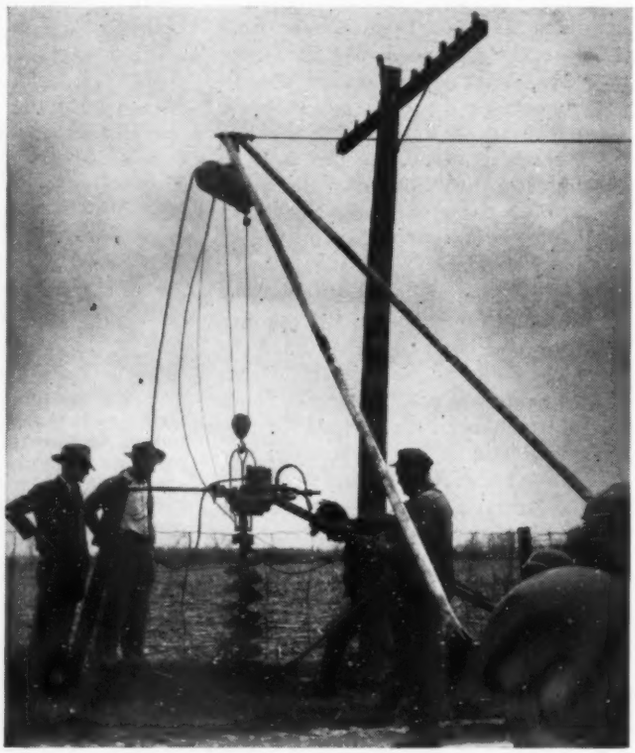


Fig. 2—Left to right—Charles Heare, Ivan Heare, Donald Brunnegraff and E. Hendricks operating the controls of the new "rig."

Stepping Cable Terminal Poles

THERE IS AN astonishing variety in methods of stepping poles, only a few of them really satisfactory to installers and troublemen. Usually the trouble is that the so-called terminal work steps are placed too low with respect to the cable terminal. These steps are often so placed that the workman finds himself directly facing the terminal. In this position, there is danger that, if the workman's pliers

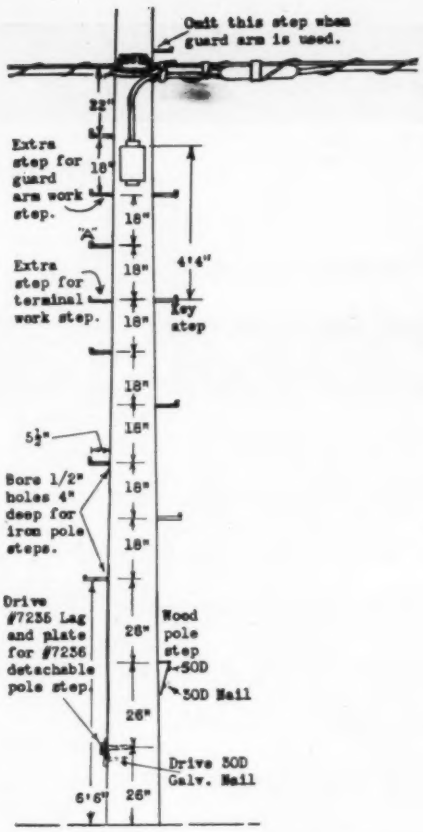


Fig. 3—Pole stepping method.

slip while he is stripping drop wire conductors or wrapping a conductor around a terminal, the pliers might strike him in the face.

One large middlewestern company recently revised its pole stepping instructions to eliminate this hazard. The proper method, for terminal mounted on the face of the pole 2' 0" below the cable strand, is illustrated in Figure 3 and is described as follows:

(1) Drive an iron pole step in the right hand side of the terminal pole 4' 4" from the top of the terminal. This is the so-called "key step."

(2) Above the key step drive steps on alternate sides of the pole. Place an extra step for the guard arm work step, if a guard arm is installed.

(3) Below the key step, place pole steps on alternate sides of the pole as shown in the illustration. Before attaching the last two iron pole steps, install the special plate and lag for the detachable pole step and the wood pole step. Be sure that the steps will come out even before boring the holes for the steps. (It is a good idea in this connection to first carefully measure the proposed spacings between the steps and make chalk marks at the proper points.)

(4) The wood pole step and the detachable step may be located on either side of the pole to make the steps come out even. Step "A" may be on the other side of the pole, if necessary, for proper stepping. This step is used by the workman to brace himself by crooking his leg over it and catching his foot over the lower step, while engaged in checking or making connections in the terminal.

The foregoing pole-stepping procedure will place a workman of average height at approximately chest level with the cable terminal. This results in a comfortable working position, and reduces chance of injury when a tool slips.

The guard arm work step is located in a position to place the workman at approximately waist level with the guard arm and enables him to easily reach drop wires attached to the ends of the guard arm.

New Type Wire Reel

A NEW TYPE wire reel which has several points of advantage is shown in Fig. 4. This reel is equipped with an automatic brake which is operated by the outgoing wire. It also has an accurately adjusted safety pay-out and take-up arrangement. It is claimed that wire cannot become tangled or fouled up with the new reel as occasionally happens on some of the older types of reels. The reel is all metal and is referred to as "self-attended". It is useful both for drop and line wire. It is particularly advantageous when used by one man on drop installation work. It is so arranged that the wire cannot jump off the reel and get snarled.

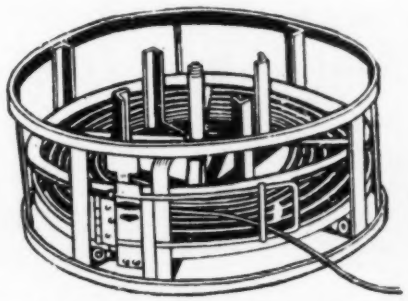


Fig. 4—Wire cannot become tangled or fouled up with this new reel.

The Multiple Pipe Ground

WE RECEIVE occasional requests asking for recommendations of our technical department as to the best type of central office ground. There is substantial difference of opinion among engineers as to what constitutes the best central office ground. Our engineers prefer the multiple pipe type. This consists of six to eight ten-foot galvanized pipes (¾ inch) or Copperweld rods (½ inch) driven into the ground as shown in Fig. 5. These are connected in multiple and to the main-frame ground bus by means of a No. 2 (B & S) heavy copper conductor. The connection to the pipes should be made with an approved type of ground clamp.

This ground has been shown to have a lower resistance than a single plate ground of buried copper. If water pipes are available, the C. O. ground should also be connected to the water pipes on the street side of the meter.

Hand Lashing of Aerial Cable

WHEN ONLY a small amount of cable is to be lashed and a cable spinner is not available, a fairly satisfactory lashing job can be accomplished by hand. This requires two men and preferably a home made hand lashing tool as shown in Fig. 6. One man rides the strand and spirally wraps the lashing wire tightly around the cable and strand. The second man working from the pole ahead moves the reel of lashing wire around the cable at the same time paying out sufficient wire for the lashing process. The home made lashing tool, consists of a wooden reel with a wiring nut-spring tensioning device and three porcelain drop wire knobs, which serve merely to tension and straighten the wire as it feeds off the reel.

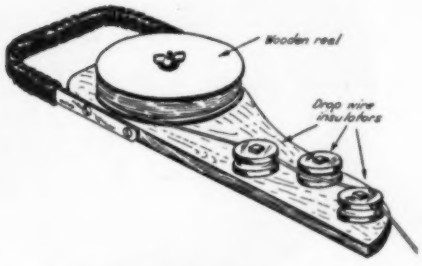


Fig. 6—Homemade lashing tool.

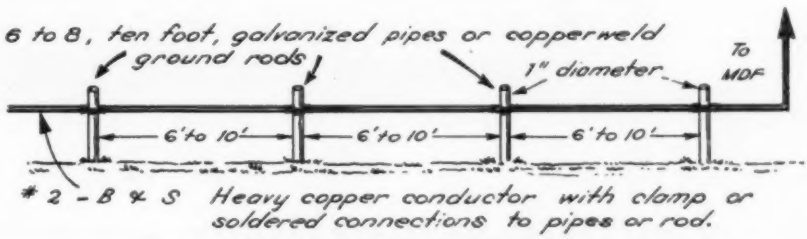
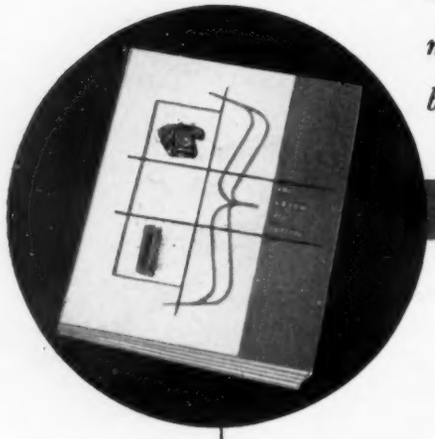

6 to 8, ten foot, galvanized pipes or copperweld ground rods
1" diameter
To MDF
6' to 10'
6' to 10'
6' to 10'
2 - B & S Heavy copper conductor with clamp or soldered connections to pipes or rod.

Fig. 5—Multiple pipe ground.

THE NEW LEICH DIAL SYSTEM

This is the most simplified dial switchboard you've ever seen. It has fewer, less complicated parts and less to get out of order. With this Leich Dial System you can convert to dial faster, with less expense and less trouble. Any good telephone man can learn to operate and maintain it. All parts, including lines and links, are jacked in. You can't make a bad guess about future expansion. No matter how large you grow, the original equipment can be added to with a minimum of expense, time and trouble. All this may sound almost too good to be true, but it most certainly is. The literature described below gives the complete story.



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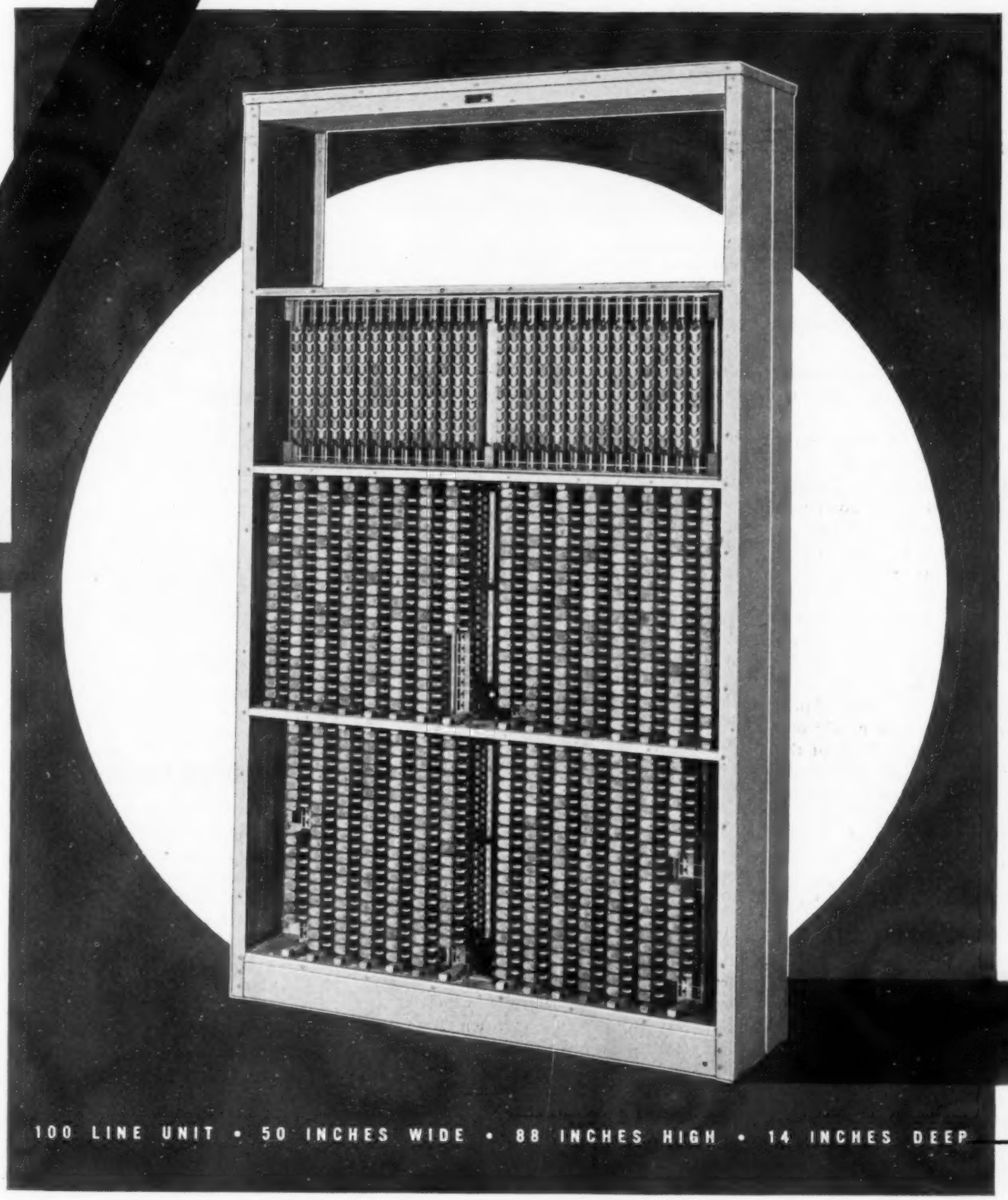
A 20 page illustrated catalog, which describes the new Leich Dial System in complete detail, is now available. Send for your copy today. No charge or obligation. Leich Sales Corporation, 427 West Randolph Street, Chicago 6, Illinois.

Leich MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 19

a better, easier way for the smaller exchange to convert to dial



100 LINE UNIT • 50 INCHES WIDE • 88 INCHES HIGH • 14 INCHES DEEP

★ TELEPHONE NEWS BRIEFS ★

LEROY A. WILSON, A. T. & T. president, addresses a group of employees during his recent visit to the Citizens Independent Telephone Company, Terre Haute, Indiana.

• NATIONAL •

. . . To a New High

Estimated number of wage and salary workers in communications industry soared to a new high of 733,000 workers in April, 1948, which compares with 728,000 in March, 723,000 in February and 496,000 in April, 1947, while employment in other nonfarm industries dropped 270,000 to a level of 42,700,000 as result of work stoppages and seasonal curtailments, the Bureau of Labor Statistics reported May 26. Although a similar decline in other industries took place last year, April, 1948 employment continued nearly one million above a year ago. Most of the over-the-year gain was concentrated in non manufacturing industries particularly trade, service, and public utilities.

The sharp April decline of 340,000 in manufacturing as a whole was attributable to material shortages caused by short coal supplies which reduced employment in blast furnaces, steel works and rolling mills, while resultant steel shortages were more extensively reflected in employment declines in many of the metal fabricating, machinery and transportation equipment industries.

Demand vs. Supply

Despite reports that business is on lower scale than year ago, copper producers state that demand from wire and cable companies is larger than the tonnages that can be supplied with stockpiling demands and the European recovery program looming as important factors. In similar spot, demand for lead shows no signs of abatement, with consumers seeking tonnages considerably in excess of available supplies. However, ray of hope shines on lead situation with news that all Mexican lead mines are working again. As result, June production from lead mines in Mexico should be the best since February, making an increased supply of marketable lead available for industry use sometime in July.

"Lot of Ideas . . ."

Although odds are against confirmation by the Senate, the FCC may have its first woman commissioner as result of surprise appointment by President Truman of Miss Frieda B. Hennock to the FCC for a seven year term, succeeding Clifford J. Durr whose term expires June 30.

Miss Hennock has been a member of Choate, Mitchell & Ely, corporation lawyers, since 1941. Prior to that time she had practiced independently in both criminal and civil law and was active both in the New York state and national campaigns of the Democratic party.

Shortly after her surprise appointment she told newspapermen that while she has no technical background and has never practiced law before the FCC, she was **"very much interested"** in communications and **"I have a lot of ideas on the field . . ."**

Cure for "Long Talkers"

A resident of St. Joseph County, Ind., recently disclosed his use of a voice recorder to discourage long, drawn-out conversations on party line telephones. The incident occurred after the recorder owner had unsuccessfully tried to get two women to end a conversation on his party line so that he could use the telephone. Three appeals went unnoticed, and on the fourth appeal he noticed that the conversation consisted chiefly of unflattering remarks about a third woman. Unbeaten and determined, the recorder owner recorded ten minutes of the conversation and set the machine to play back.

"Ladies," he announced into the telephone, "I want you to hear how you sound."

The recorder blared out the words the women had spoken only a few minutes before. At the end of the recording the party line was silent and recently words spoken on it have been fewer and to the point.

'Operation Rowboat'

Linemen of Garden Valley Telephone Co. met recent flood conditions in River Valley, Minn., by conducting an operation referred to by residents of the area as "Operation Rowboat" to provide service to subscribers in the flooded area despite high water.

With aid of a row boat and several thousand feet of army surplus rubber coated waterproof wire, linemen Walter Shoholm, Loren Hole and Bert Brown of the Garden Valley company dropped lines in the water and established good, though temporary service.

Installs 1,000,000th Telephone

The millionth telephone owned by General Telephone System was installed on May 19. According to Harold V. Bozell, president of General Telephone Corporation, this historic installation was made in the home of Mr. Jack Pierick, living in the farming community of Richland Center, Wisconsin. Richland Center is one of the five exchanges acquired by the late S. L. Odegard and J. F. O'Connell in 1920, and as part of the Commonwealth Telephone Company, formed the nucleus of what is today known as the General Telephone System. The original System exchanges served about 1,550 stations when acquired.

From this beginning, General Telephone System has grown to become the largest operating group of telephone companies in the United States, outside the Bell System. Today Gen-

Vernon W. Thomson, mayor of Richland Center, Wis., places a call on millionth telephone owned by General Telephone Service as Art Jones, Richland manager, and H. F. Moran, commercial superintendent, Commonwealth Telephone Co., look on.

eral furnishes telephone service through 1,022 exchanges in 19 states extending from Southern California to Vermont and from the State of Washington to Louisiana.

The System's five-hundred-thousandth telephone was installed late in December, 1939. During the intervening eight years and four months, the number of System-owned telephones in service doubled, and total assets have increased from $108,755,000 to $195,000,000. This growth can be accounted for in part by acquisitions but more particularly by additions of telephones to existing exchanges.

General Telephone System companies experienced a net gain of 100,900 telephones during the twelve months ending March 31, 1948, exclusive of acquisitions. Notwithstanding the extent of this growth, System companies were holding at that date 123,000 unfilled service applications.

Under Sea Service

A young man clad in the bulky garb of a deep sea diver groped toward a rich abalone shelf 50 feet below the surface of Santa Catalina Island. Before he started work he made a telephone call. There was no booth handy, that many fathoms down, but his diving helmet was rigged with a device which enabled him to reach any telephone in the nation. He contacted the operator, reached his party, ascertained the day's abalone market, then proceeded to pry that many loose from the rocky bottom.

Incident, was just one of many uses to which Pacific Bell's ship telephone service is put by more than 900 subscribers to whom the call letters KOU are familiar. Service has proved to be a morale lifter. Fishermen who haven't seen their families for weeks are just as far from their firesides as the telephone. Some seafarers call their homes and tell their wives when they'll be in for dinner; others order the dinner.

Radio frequencies between 2100 and 2200 kilocycles are used for ship to shore channels. Ship-to-ship conversation is carried on over 2738 kilocycles while a channel at 2670 kilocycles is used for calling the United States Coast Guard Station. Technicians manning the 24-hour watch on the marine channel check against use of profane language and say that seafaring men belie their reputations, both factual and literary, as "hard cussin individuals" and are seldom guilty of violating profanity regulations.

"Not Forgotten . . ."

Oakland (Cal.) Tribune recently dug deep into telephone history and came up with facts about the Ridge Telephone Co. and the "first long distance telephone line in the world," that brought back memories to old time California Independents of the days when Alexander Graham Bell and his associates were racing with Western Union for control of the speaking telephone.

The Tribune stated that during the last half-century America has lost track of the Ridge Telephone Co., has forgotten its name and its accomplishments—although the organization made history in 1878 by building and operating the first long distance telephone line in the world.

The line was 60 miles in length and extended from French Corral in Nevada County, Calif., to Milton in Sierra County. First annual statement of the Ridge company showed expenses for the period from December 1, 1878, to December 1, 1879, to be $2993.08 and total receipts from tolls $464.03 after paying $201.51 to Western Union for interline connections. Later returns were probably better, but profit or no profit, convenience of the system was what counted with its builders.

Lion's share of credit for success of the company belongs to Paul Seiler who later became a San Francisco distributor of telephone equipment. Some of his original telephone boxes with their square cornered bells are still to be found in use far back in the mountains.

The beginning of the end for the Ridge company came in 1884 when the U. S. Supreme Court put an end to unrestricted hydraulic mining and stopped operations of the mining corporations of San Juan ridge. While the line survived for years afterward, the real purpose for which it was built was gone when the "monitors and the sluicers of the hydraulic mines were dry."

Women Block 'Pole Planting'

A couple of dozen housewives of Altadena, Calif., decided that poles being erected on one of the town's avenues were "unsightly." They mulled the matter over during back porch discussions and finally on May 14 staged a "sit down" strike that held construction workers of the Pacific Bell at bay and forced the company to call a halt to "pole planting" operations. Women, themselves called off the strike before company managers reached their husbands and explained that it would be dangerous to erect the lines on back yard poles already carrying 17,000-volt high tension wires.

• COMMISSIONS •

Rate Adjustments Denied

The Florida Railroad & Public Utilities Commission on May 28 denied application of the Southeastern Telephone Co. for increases in its general schedule of rates and charges for intrastate telephone service, rejected the "State Wide Approach To Rate Making" used by the company in presenting its need for increased rates and ordered that future considerations of proposed rates should be on an exchange basis.

The Southeastern company, in its initial presentation submitted earnings

(Please turn to page 46)

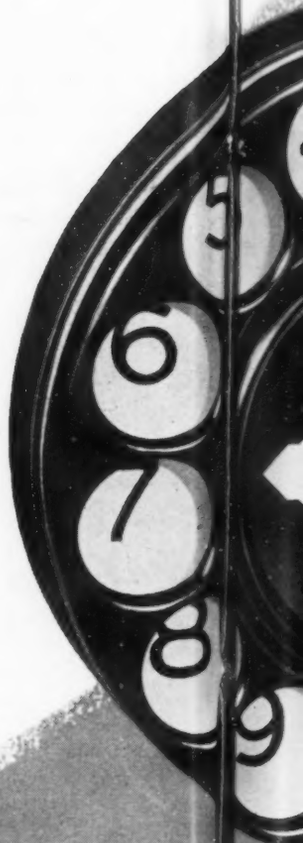
Better Your Service

WITH *Automatic*

On

You give better subscriber service, and keep costly maintenance calls to a minimum, with these famous Automatic Electric Dials on all your telephones. Naturally, you'll install them on Monophones when converting to automatic operation. But they're perfect, too, for replacement purposes on other telephones—and when converting instruments of other makes to automatic operation.

Hundreds of telephone companies—millions of subscribers—are now happily using Automatic Electric Dials. Quantity production makes these dials available NOW for your telephones of any make and type designed for automatic operation. Order TODAY and you'll have your Dials quickly. Specify the type of telephones on which they'll be installed and our engineers will supply exactly the Dials you need.



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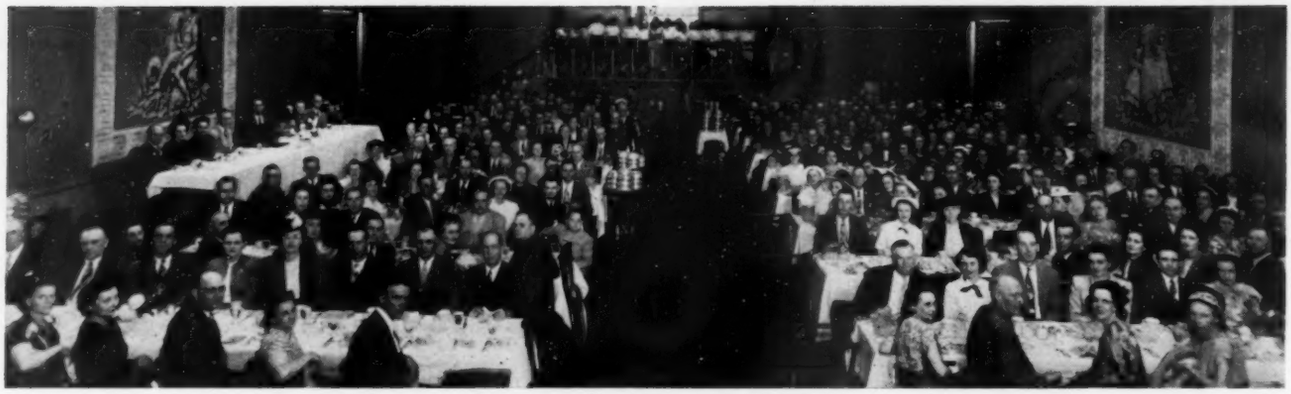
On *Any* Instrument!

Automatic Electric Dials are available with number plates, number cards, and transmitter-receiver shunting springs as required for any type of automatic telephone.



General view of the annual banquet and reunion of the Frank H. Woods Chapter of the Independent Telephone Pioneer Association held recently at Lincoln, Nebraska, with an attendance of 330. Seated at the speakers table are Otto Nelsen, secretary; Mrs. Nelsen; Myrtle Hiner, treasurer; George E. Walroth, president; A. B. Gorman, toastmaster; Mrs. Gorman; Mrs. O. L. Sturtevant, and O. L. Sturtevant, vice president.

figures and rate of return computations for the entire Florida system as a consolidated whole giving no break down between various exchanges. The company contended that such information is neither necessary nor pertinent in the fixing of reasonable rates.

In rejecting the "State Wide" approach to rate making, the commission stated: "The record in this case, based as it is on the state-wide approach, with only one over-all earnings figure for the entire Florida system presented, is incomplete in essential rate-making data and affords the Commission an insufficient basis for equitable rate fixing on an exchange basis."

The company contended that its showing on a state-wide basis entitled it to the increases sought. The Commission stated that even on a state-wide basis, it is necessary to make a separation of investment, revenues and expenses between intrastate and interstate operations (between exchange and and intrastate toll and interstate toll). Without such information, the Commission claimed that it "is without the necessary information to determine whether the increases should be on exchange, intrastate toll or interstate toll, a combination of two of the services or on all three services . . . The proposed increases would apply only on exchange rates; and yet the increases in wages, and materials and supplies, advanced as largely responsible for the proposed increases, are applicable proportionately on toll and exchange services."

Stating that the principal objection to the proposed increases was based upon the contention that service provided by the Southeastern company to its subscribers does not warrant any increase in rates, the commission order said: "These protestants take the position that the rates should follow the service. On the other hand the company takes the position that it must improve its earnings record so that it can attract the new capital required to finance its expansion and rehabilitation program. . . . In substance the company contends that the service should follow the rate. With that theory this Commission cannot agree. The value of the service is an essential element in rate making and has always been so considered by the Courts and regulatory agencies. . . ."

Expenses Soar—Rates Boosted

The Public Service Commission of Indiana on May 20 approved petition of the Michigantown (Ind.) Cooperative Telephone Co. for authority to adjust rates as follow: Private residence from $1.65 per month to $2.50; party residence, $1.40 to $2.25; Private business, $1.75 to $3.00, and party business, $1.65 to $2.50.

The company notified the commission that it proposed to add an estimated 40 new subscribers living in the Middlefork, Ind., area and that addition of facilities to serve the subscribers would necessitate expenditures of $3,300, improvements to present facilities would require an expenditure of $2,000, and that in order to retain efficient operators it will be necessary to raise salaries causing an additional expense of $1,716 annually.

Subscribers Back Rate Boost

Approval of revised schedule of exchange rates of the Lexington (Ala.) Telephone Co. by the Alabama Public Service Commission revealed that majority of the company's subscribers had signed petition requesting commission approval of the proposed rates. F. H. Burgess, owner of the company stated that the company's increases in operating and maintenance expense made it necesary that rates be increased if the company was to meet operating expenses and improve and maintain the plant. He explained that on January 1, 1947 the company's lines were torn down by a sleet storm causing the company a loss of approximately $1000 in revenue and depriving subscribers of toll service.

The company now has a contract with the Southern Bell to establish another long distance connection. Rates approved by the commission, effective upon establishment of toll service are:

Urban Service	Present Rate	Approved Rate
1-party Business	$1.00	$2.00
2-party, Business	None	1.75
1-party, Residence	.50	1.50
2-party, Residence	None	1.25

Rural Multi-Party Lines*
(Not less than 4 or more than 8 subscribers per line)

Business	None	$1.25
Residence	.50	1.00

*Rural lines and telephones will be owned and provided by subscribers and maintained by the company.

$100 Buys Missouri Exchange

The Missouri Public Service Commission has authorized Ernest Dinwiddie to purchase the Philadelphia (Mo.) Telephone Co. from B. B. Buchanan. Sales resulted from subscribers' complaint filed with the commission in 1947 asking that Buchanan be required to provide adequate telephone service. Buchanan testified that the plant, old and badly depreciated, was almost completely wrecked by an ice storm, and offered the property for sale to anyone with $100.

Rates Offset Deficit

Myrtle Creek (Ore.) Telephone Co. presented the Public Utilities Commissioner of Oregon statements showing that the company had an operating loss for the last 10 months of 1947 in the amount of $2,207.18 and expected to

The International Truck Point Rating System Establishes Accurate Vehicle Weight Ratings

• From International Model KB-5 up, gross vehicle weight ratings for International Trucks are shown as minimum and maximum.

Take the KB-5. The gross vehicle weight rating *range* of the KB-5 is shown as 13,500 to 17,500 pounds.

Now, take the KBR-11. Its gross weight rating *range* is shown as 27,000 to 35,100 pounds.

However, the actual gross weight ratings of these two models, and of other Internationals from the KB-5 up, are calculated according to the work each vehicle does and the conditions under which it does its work—the conditions that determine the actual strain put upon the vehicle.

This calculation is based on the International Truck Point Rating System, a scientific method for calculating how much payload each International should carry to perform best for its owner — *his load and his operating conditions considered.*

And in every case the safety factor — the extra margin of strength — is the same for each model irrespective of the G.V.W. assigned by the Point Rating System.

The International Truck Point Rating System is an *exclusive* International Service. It is a scientific system — Note that! — and not a procedure for guessing.

Any International Dealer or Branch will be glad to furnish any truck operator or owner with a concise demonstration of how the International Truck Point Rating System works — of how it establishes accurate gross weight ratings under all conditions.

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THIS EMBLEM IDENTIFIES GREAT TRUCKS
INTERNATIONAL

INTERNATIONAL Trucks

have a deficit in net operating income for 1948 of $2,688.77 providing current rates for telephone service remained in effect and Commissioner John H. Carkin, on May 25 granted the company authority to rate increases varying from $1.00 to $2.00 per month. Based upon number of telephones in service on January 1, 1948, the new rates effective June 1, increase the company's annual revenue $4,249.20.

New Rates Approved

Rosedale Mutual Telephone Co., serving more than 500 subscribers in Rosedale and Bridgeton, Ind., on May 20 received authority from the Public Service Commission of Indiana to establish the following rates: Single line, town, $2.50 per month; party line, $2.25; single line, rural, $2.50; party line, rural, $2.00; single line, town, $2.00; party line, town, $1.75; single line, rural, $2.00, and party line, rural, $1.50.

• EXPANSION •

"Ground Floor"

With completion of its changeover to automatic system, the Citizens Telephone Co., Berne, Ind., will be prepared for the nation-wide toll dialing system that is now being set up. Manager Charles D. Ehinger has announced that the Citizens company is first in Indiana to be assigned its codes from the Indiana Bell Telephone Co.

Each of Citizen's exchanges has been assigned code letters coinciding with the first two letters of the exchange name; Decatur is assigned DE; Berne, BE; Monroe, MO; Pleasant Mills, PL; Linn Grove, LI; Bryant, BR.

The company has started its automatic conversion project with the construction of a new building at Pleasanton. Changeover at Pleasant Mills will be made this fall; Monroe and Bryant are due for cutovers early in 1949, Decatur early in 1950 and Berne by April 1950.

New Ulm Plans Improvements

Automatic switchboards for rural exchanges and other extensive improvements are planned by the New Ulm (Minn.) Telephone Co. Fred Pfaneder, president, announced that between $60,000 and $75,000 will be required for the extensive program.

First automatic installation is scheduled for Courtland with other installations progressing as rapidly as material and equipment are available. The company plans to enlarge the New Ulm switchboard by boosting it from 2,000 to 2,200 lines.

Front view of the new $40,000 office and central building of the Platteville (Wis.) Telephone Company.

Mobile Service for Lima

George B. Quatman, president of the Lima (Ohio) Telephone & Telegraph Co. and the Ohio Central Telephone Co. announced that the companies have filed applications with the FCC covering a complete program for the use of radiotelephony for mobile service, two-way dispatching, one-way signalling, emergency bridging of wire links disrupted during storms and two-way general telephone service with rural subscribers.

Program is to test radio telephone service for approximately 100 exchanges which are part of Telephone Service Co. of Ohio. The application for the Lima company stated that for taxi service the installation charge would be $25 and monthly charge of $25 for service.

$1,250,000 for Improvements

William A. Seely, president of the Chenago & Unadilla Telephone Corp., Norwich, N. Y., announced a $1,250,000 expansion and modernization program. Program covers a four-year period and includes new office building in Norwich, new central office buildings in Oxford, New Berlin, Sherburne, Guilford and Smyrna, N. Y. and conversion to automatic service. The company serves 10,489 subscribers.

Toll-Ticket Recorder

E. Wommack, president of the De Queen (Ark.) Telephone Co. announced installation of recordak equipment to record the hundreds of toll tickets filed by the company each month. The machine will photograph each ticket onto a roll of film, reducing the tickets so that a reel only 3½ inches in diameter will hold the permanent record of thousands of toll tickets.

When the ticket is needed for reference, the reel is played back through the apparatus and a full size picture of the original toll ticket facilitates checking. Mr. Womack stated that the equipment eliminates the necessity of filing the original ticket which will be forwarded to the subscriber with his monthly bill.

"Bring Your Friends"

R. I. Gillihand, manager of the Hoopeston (Ill.) Telephone Co., took close look around the company's newly modernized Hoopeston office and its new switchboard, decided that the company's quarters and equipment are among the finest of any exchange its size in the country, and promptly decided to stage an "Open House" to show residents of the community just what made their new telephone facilities so efficient.

The three-day "Open House" drew record crowds and was accompanied by newspaper publicity that explained: (1) Facilities now available are sufficient to take care of demands for many years to come, and (2) that materials for extending outside cables and lines are still difficult to obtain and represents only obstacle in the way of providing complete facilities to the community.

• ASSOCIATIONS •

INDIANA: "Small Company Aid"

Putting emphasis on continued aid to small companies and presenting a program of value to all companies, members of the Indiana Telephone Association held their 28th annual convention at the Claypool Hotel, Indianapolis, May 5-6.

Directors elected for three-year terms ending in 1951 are: R. E. Brookbank, Pendleton; T. D. Dial, Indianapolis; John Goodwin, Brookville; John A. Harbaugh, Sullivan, and Francis Simpson, Winchester. Officers re-

elected are: W. J. Scheidler, Greensburg, president; LaMar S. Stoops, Nappanee, first vice president; C. E. McCormick, Terre Haute, second vice president and W. H. Beck, Indianapolis, secretary-treasurer.

Larence E. Carlson, member of the Public Service Commission of Indiana was the first speaker at the general session.

Stating he had observed that the telephone companies not only of Indiana, but elsewhere, have been confronted with many serious operating problems peculiar to the telephone industry alone, Mr. Carlson said, "The manner in which these problems have been met and for the most part solved by you, deserves strong praise and congratulation."

He commented that the commission must view problems of the telephone industry in the light of the public interest. "Your best interests," he said, "up to a certain point, are in the public interest. If you prosper and succeed, the public interest will be served. If you falter and fail, the public interest will not be well served. Therefore, your economic welfare must be, and always is, considered by the commission as one of the important factors in the determination and settlement of your problems.

"A rate which is too low does not permit sufficient income to render adequate service, to build up reserves for replacements of worn out property or repairs of facilities caused by accidents or acts of God. Not only that, but such a situation involves the gradual confiscation of the utility's property much the same as the lack of food creates a condition of starvation in the human body. Such a situation resulting in the deterioration of the utility plant and of the service it renders, is obviously not in the public interest."

F. E. Marston, vice president of the Indiana Bell Telephone Company, Indianapolis, during his address on the subject "Public Relations In The Telephone Industry", stated that public relations is the task of fitting business to the pattern of public desires, adapting business to a Democracy; it means earning a good reputation with the public and establishing the business in the public mind as an institution of character and one which functions in the public interest.

"The most important factor affecting good public relations is undoubtedly good telephone service," he said. "If the service is not good as the customers believe it should be under the circumstances, it is difficult, if not impossible to convince them that we are doing our best . . . Good service includes servicing as many people as

Set 'em Solid with the

NEW DICKE POLE TAMPER IN AUGER-DRILLED HOLES

Poles set in auger-drilled holes with the new Dicke Pole Tamper have more resistance to strain than poles set by ordinary methods. Spade-shaped tamping head of forged steel is concave for close-in tamping around base. Handle available in two lengths, 3 feet and 10 feet. Your lineman can set every pole solid with the new Dicke Pole Tamper.

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FROM THE COMPLETE LINE OF OLIVER POLE LINE MATERIALS

OLIVER TELEPHONE LINE PINS

The Oliver pins illustrated are made for use with standard insulators having 1-inch diameter pin hole. They are forged from high carbon open hearth steel, and hot dip galvanized. Wood cobs are of air-dried oak, boiled in paraffine.

Makers of Pole Line Materials Since 1894

OLIVER IRON AND STEEL CORPORATION

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possible, providing good technical service to all customers, urban or rural, at all times. It means service that is prompt and reliable and has good tone. It seems to me that good tone in our service, which means courtesy, friendliness, helpfulness and an obvious desire to meet the customers' wishes, is most important . . . There must be no shortage of courtesy, friendliness. and helpfulness. . . "

Mr. Marston stated that the other three important factors of good public relations were: (1) Good employee relations; (2) Good decisions in public interest, and (3) keeping the public informed. In his closing remarks he said that, " good public relations consists 90 per cent in doing a good telephone job and 10 per cent in getting credit for it. A public relations point of view, built into, not added to, your operations, whether your company be large or small will pay dividends in your effort to give good service and earn a fair return."

President Scheidler, in his address to the convention on Wednesday afternoon stated that "no one can long function in business unless his business yields a profit.

"It does not matter," he said, "what a telephone man's views are concerning free service, low local service rates, special low toll rates, or what he thinks about the nobility of profits. His opinions are beside the point. He is obliged to make profits his first aim—not his most cherished aim, but his first aim—for unless he does so, he will sooner or later eliminate himself from the telephone business. . . . Failure to follow that kind of philosophy has put many mutually-owned, and many of the Independently-owned telephone companies in the plight they find themselves today. It appears that these companies built a telephone plant years ago and then proceeded to give it away, ignoring entirely the setting aside each year of an adequate reserve for maintenance and depreciation."

Mr. Scheidler outlined the activities of the Service Committee of the Indiana association which has recognized the position of the small companies and is endeavoring to be of assistance in aiding them to restore their plants and personnel to provide good service.

"It is vital to the telephone industry," he said, that these small companies continue to operate. A number of these companies are threatened with abandonment which poses a serious problem to the telephone industry to see that all people who desire telephone service shall have it."

Traffic sessions conducted under the supervision of the Ladies Traffic Committee attracted capacity audiences. Members of the Ladies Traffic Committee were: Mrs. Mabel Tonnies, Indiana Telephone Corporation, Seymour; Miss Marie Jellison, United Telephone Co., Inc., Warsaw; Miss Alene Eldridge, Indiana Bell Telephone Company; Indianapolis, and Miss Vivian Lasley, Indiana Telephone Association, Indianapolis.

The Hostess Committee, which made a major contribution to the convention 's success, was composed of the following members: Miss Helen Ives, Home Telephone Company, Pittsboro; Miss Eleanor Tittle, Southern Indiana Telephone Company, Lawrenceburg; Mrs. Mabel Michael, Pendleton Telephone Company, Pendleton; Miss Marjorie Tumilty, Public Telephone Corporation, Greensburg; Miss Lydia Hoffman, United Telephone Company, Inc., Warsaw; Mrs. Irene Watts, Indiana Associated Telephone Corporation, Elkhart and, Miss Cathryn Ullom, Eastern Indiana, Telephone Company, Winchester.

KANSAS: "264 Registered"

"How to make 40,000 subscribers happy with present service and ex-

(*Please turn to page* 54)

Sun Dials Count Only the Bright Hours...

...but industry must count every hour ...make every hour count. Two decades of experience have developed in the Loomis organization the qualities of sales initiative and flexibility based on positive selling methods, that make the most of bright prosperous days...and maintain that maximum during days of dark uncertainty. These tested and proved methods have brought millions in directory advertising revenue to hundreds of Loomis clients the nation over.

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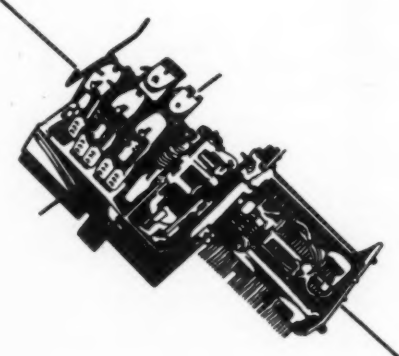
Around the World

travels the trademark of Automatique Electrique. Through the facilities of the International AUTOMATIC ELECTRIC Group, communication and electrical industries the world over have come to know this mark on superior telephone instruments and exchange equipment—products of a half-century of manufacturing experience.



Wherever you are—whatever your equipment requirements may be—the International AUTOMATIC ELECTRIC Group is prepared to serve you with products of the finest quality, made by leading manufacturers of telephone equipment.

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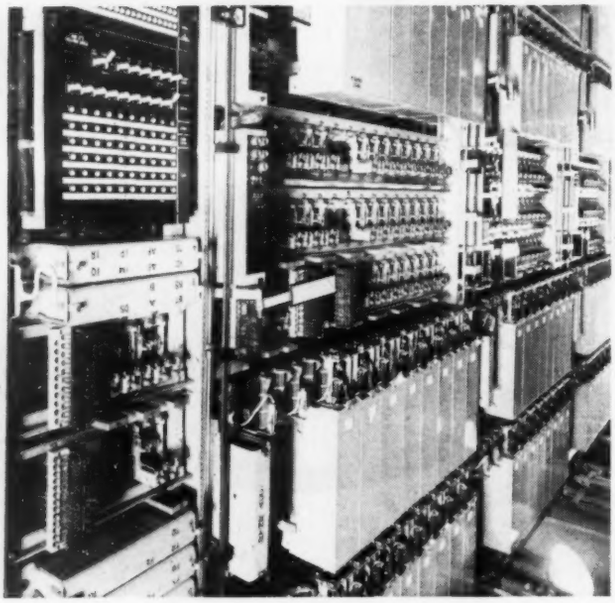
The Monarch Director Exchange

(Continued from page 37)



First code selector and routiner of London's Monarch director automatic exchange.

Sixth Floor—Overseas Trunk exchange (105 positions)

Monarch is a "2000" type Director exchange the type number being derived from the designation of the Type 32A (B. P. O. Type 2000) two-motion selector standardized by the British Post Office. The equipment conforms in all details to B.P.O. standard practice for exchanges of this type. Power supply is on the well-known "Divided Battery Float" Scheme and the batteries and generators provide the power by busbar distribution not only for 'Monarch' but also to the other exchanges in the building. Fault alarm indicators, ventilation and lighting arrangements are in accordance with normal modern practice.

War Experience Showed Value of Fire Protection

IN VIEW OF the experience gained during the war, particular attention has been given to protection against fire risk particularly with respect to stairways and cable ducts which pass from floor to floor. Stairways are built at the extreme ends of the building between the outer wall and an inner wall separating them from the floors they serve; access to the exchanges being obtained through fireproof doors. Where exchange cabling passes through the floor, the cable hole is lined with teak and covered on the underside with an asbestos plate, suitably cut to receive the cables. The plate is secured to the ceiling by all steel expansion bolts which cannot become detached if heated and will break away only if the floor disintegrates. The inside space between and around the cables is packed air-tight with bags of asbestos which are individually secured by asbestos string to steel cross bars which cover the outlet to the exchange floor. A wooden cap covers the whole assembly. These precautions will help to ensure that in the event of an outbreak occurring on one floor the flames will not spread via the cable holes to other floors.

Monarch is a 10,000 line exchange and all these lines can, if necessary, be used for subscribers' connections. Direct dialling is possible between Monarch and any other automatic exchange in an area extending over a radius of ten miles from Oxford Circus. No fewer than 125 automatic exchanges are incorporated in the London Director area and further conversions of manual exchanges may be expected in the near future which will ultimately result in creating one of the largest single automatic networks in the world to be embraced in a universal numbering scheme.—THE END

STROMBERG

The Churchill No. 100 Folding Door Telephone Booth

The churchill . . .

an attractive telephone booth

Not only attractive—but comfortable and private—the CHURCHILL No. 100 Folding Door Telephone Booth will increase your pay station business.

Operating companies have found the CHURCHILL No. 100 Folding Door Telephone Booth a builder of pay station business.

It is constructed as a single unit and equipped with a reinforced back panel for mounting a wall telephone or coin collector.

The CHURCHILL Booth is made of selected white oak and is available in light or medium oak in a satin finish.

Included as standard equipment are electric light and automatic electric ventilator.

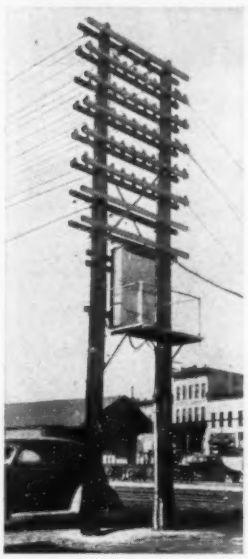
Overall height is 84¾"; width, 30½"; depth, 30½". Shipped knocked down and crated.

Illustrated literature available.

STROMBER(-C

BRANCH OFFICES: CHICAG(NSA

RG-CARLSON Recommends



specify

"dependable" cross-arms

. . . all that the name implies

Cross-Arms made of a uniform grade and expert workmanship by American Cross-Arm, Inc., are available in three types of wood to meet your individual preference:

- Douglas Fir
- Creosoted Yellow Pine
- Gulf-Red Cypress

"Dependable" Cross-Arms are sturdy, well-seasoned, and available now for prompt shipment anywhere in the U. S. A.

kennecott telephone cable

is pre-tested to operating company requirements

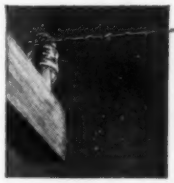
Before a single inch of Kennecott cable leaves the mill, it is tested for Dielectric Strength, Insulation Resistance, Conductor Resistance, Capacitance and Fixed Dimensions. Such care in manufacture is your warranty of efficient, trouble-free performance in the field. Specify "Kennecott"—distributed by Stromberg-Carlson.

this chip tells the story...

of the Permanent Weld in

copperweld

Lathe-turned from a section of a Copperweld billet, this chip clearly illustrates copper and high-strength alloy steel permanently united. The two metals are *welded* to each other and *cannot be separated.* This *permanent weld* is achieved by the exclusive Copperweld process of molten-welding.



By specifying "Copperweld Telephone Line Wire" you are assured of the electrical and mechanical characteristics most vitally needed for dependable and economical service—the high conductivity and corrosion-resistance of copper, plus the rugged strength of steel.

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STROMBERG Telephone CARLSON

Group photos taken by TE&M camera during Kansas convention. Left photo (left to right): Dick Fegan, Foster Laming, W. C. Wilkin, L. Ruggles and Walter Lawrence. Right photo (left to right): C. E. Tucker, M. E. Vail, F. M. Browne and (extreme right) Dick Fegan.

pand to bring service to thousands of would-be subscribers" were feature problems discussed by the 264 members of the telephone industry attending the 48th annual convention of the Kansas Telephone Association at the Jayhawk Hotel, Topeka, May 19-20.

The entire slate of officers and Executive Committee members was reelected as follows: Executive Committee, C. J. York, Girard; W. H. Reilly, Topeka; Tom Fegan, Junction City, and Fred Cross, Wilson; Officers: Foster Laming, Tonganoxie, president; Mr. Fegan, vice president, and H. B. Couch, Topeka, secretary-treasurer.

Appearing as speakers during the two-day meeting were: Mr. Laming; Foster B. McHenry,director of the United States Independent Telephone Association, Jefferson City, Mo.; Ray W. Smith, editor of Telephone Engineer Publications, Chicago; L. F. Roberts, general representative, Gary Group Operating Companies, Chicago, R. S. Johnson, Southwestern Bell Telephone Co., and V. E. Code, engineer, Topeka.

An operators' conference was held Wednesday afternoon with H. B. Whaley, in charge while the general session was meeting to discuss "The National Situation," under the leadership of Mr. McHenry, representing the United States Independent Telephone Association.

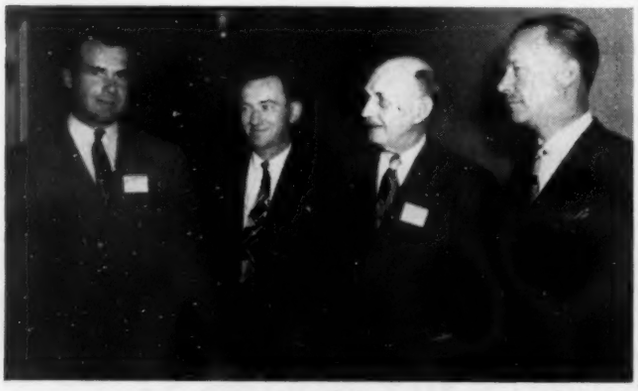
J. H. Edenfield, Oxford; Dick Traylor of Texas Creosoting Co., Conroe, and B. W. Barnes, Oxford, at Kansas convention.

Mr. McHenry stated that the National Association is composed of 525 contributing, 37 honorary and 1960 accredited members and includes large and small Independent telephone companies located in all sections of the United States.

He stated that the manufacturers of telephone equipment "are a strong segment of the association; through their exhibts and financial support National and State conventions are made attractive to telephone people."

Commenting that in this day and age it is highly important for an industry such as the telephone business to have capable representation in Washington, Mr. McHenry said, "We have a full time executive vice president, Clyde Bailey, a full time assistant treasurer-secretary and statistician, Floyd Ridings and a full time engineer, G. C. Richert. In addition there are 36 directors from all parts of the country who are available for advice and even testimony before congressional committees.

Thursday's program included a demonstration of the mobile telephone, a plant discussion led by J. G. Kreamer, of the American Telephone Co.



Left photo—"Dinny" Dinsmore, Chicago (left), Herb Couch and Leon Roberts discuss Kansas convention activities. Right photo—W. C. Wilkin, Nortonville, and Foster Laming, Tonganoxie.

Time Flies
so
If you're going
to do
something
you'd better
Dood
it
now

●

For Material,
Labor and
Supervision,
are getting
harder to get
every day!

●

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to do your
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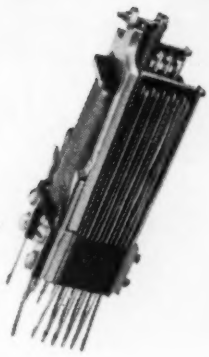
GETTING DOWN TO FINE POINTS

Most people know very little about the amount of scientific research devoted to improving each working part of their communications system.

The advertisement on the opposite page tells some interesting facts about the telephone relay. Appearing in national magazines during June, it emphasizes the telephone industry's endless search for ways to give better service and keep the cost low.

AN ADVERTISEMENT OF THE BELL TELEPHONE SYSTEM



Telephone Relay
about 2/5 actual size

1000 for a Nickel

BELL TELEPHONE LABORATORIES
A great research organization, working to bring you the best possible telephone service at the lowest possible cost

WHEN you drop a nickel in a pay station and dial a call — or dial from home or office — as many as 1000 telephone relays go into action.

The relay is the little device illustrated above — an electrical switch that works far faster than you can wink. You probably don't know it exists. But you couldn't make a telephone call without it.

These relays leap into service when you telephone, opening and closing circuits. They operate millions of times in their lifetime.

Bell Telephone Laboratories designed this relay and some of the Laboratories' best scientific minds are spending all their time improving it.

Is it worth while to assign such great talent to so small a device?

Here is the answer: There are more than 100,000,000 relays in the Bell System and they represent one dollar out of every six spent for equipment in dial telephone exchanges.

Design changes by Bell Telephone Laboratories have already saved millions of dollars in cost and greatly improved telephone service. It is this kind of research, especially in a time of rising costs, that helps keep your Bell System telephone service low in price.

BELL TELEPHONE SYSTEM

One Pair of Climbers That Will Fit Every Lineman

Buckingham

ADJUSTABLE Climbers

Entire upper assembly is raised or lowered by sliding the two supporting rods in their tubular sockets. The two set screws securely clamp the adjustable part in desired position.

Correct size in climbers — to fit the biggest or the shortest man on the crew — is on hand with *every* pair of BUCKINGHAM *Adjustable* Climbers. Each adjustable climber can be lengthened or shortened over the full range from sizes 15 to 18½. Linemen get a better fit with adjustable climbers . . . the exact length that fits best, instead of to the nearest half-inch. All the safety and comfort that has made Buckingham climbers famous among men who use climbers, will be found in them.

The feature of replaceable gaffs eliminates discards because of blunted or broken gaffs. The gaff is locked to the body of the climber at an angle which will not permit it to become disengaged in normal use. The angle of the gaff permits the lineman to stand closer to his work with less possibility of cutout, and also makes climbing easier.

Gaff is replaceable by driving out the "Driv-Lok", then forcing the gaff down and out.

BUCKINGHAM Adjustable Climbers are fitted with leg and foot straps, and BUCKINGHAM de Luxe leather pads filled with rubberized wool for greater comfort . . . they feel right the first time worn.

Linemen get *greater comfort* and *safety* from their climbers, *and* fewer pairs are required to keep every man on the job, when you standardize on BUCKINGHAM Adjustables. Ask about them at your supply house, or write directly for descriptive bulletin.

BUCKINGHAM MANUFACTURING CO., INC.

Walter E. Craw, President — 5-7 Travis Street, Binghamton, N. Y.

Manufacturers' and Suppliers' Problems

(*Continued from page* 35)

up and expand production hinges on this factor.

You are all familiar with the continued shortage of new automobiles in this country despite the fact that they are mass-produced with relative ease and simplicity once a new model has been released into production. Try to imagine if you will what the automobile manufacturers would be up against if every new car had to be individually designed and engineered to meet the prospective owner's specification! Yet that is precisely what we telephone equipment manufacturers must do on every order for new central office equipment.

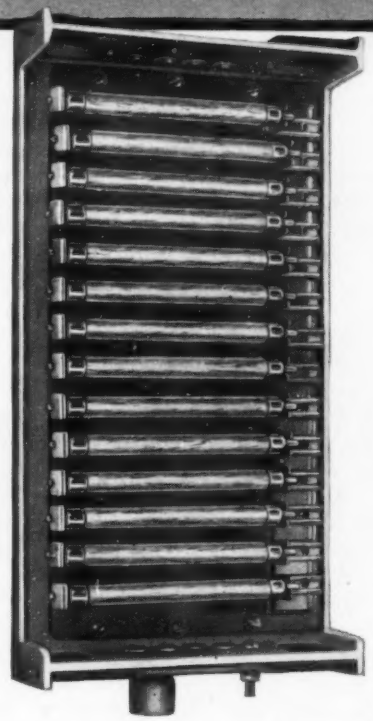
Long Delivery Intervals

IT IS INEVITABLE that when demand for a specific product exceeds the available supply, a backlog of orders must certainly result. Just as the length of time required to get a hair cut is largely determined by how long you must wait for your turn in the barber's chair, so in our industry delivery intervals are primarily affected by the length of time an order must wait before being released into actual production due to the backlog of orders preceding it. This is the reason for the long delivery intervals currently prevailing in the telephone industry, and until such time as our backlogs are exhausted and supply once more catches up with demand, there can be no hope for a return to the relatively short delivery intervals which were the rule prior to the war.

Aside from the continued shortage of experienced equipment engineers which, as mentioned previously, is the basic factor preventing unlimited expansion of production in our industry, I am happy to report that most of the other conditions which have hampered production since the end of the war are now much improved.

It is still necessary for us to get out and scratch for many of our materials and to continue relying upon substitutes to a certain extent. But generally speaking, material shortages have eased considerably, the two most serious shortages still with us being steel and lead. The shortage of labor has also diminished to a certain extent, and while Chicago continues to be one of the few remaining

VERSATILE—DEPENDABLE



Type 40 Terminal 7 pair, less stub, with cover (not shown). Cat. No SA-34

Automatic Electric's
TYPE 40 - 7 PAIR
PROTECTED CABLE TERMINAL

This compact 7-pair-capacity terminal offers complete versatility and protection. It is equipped with detachable mounting bracket (may be bolted to pole before terminal is placed) and the cover is reversible so that cable may be led in from top or bottom. Complete terminal with cover is 7¼" wide, 4¾" deep and 14" long. Has accurately gauged discharge blocks, and 3-ampere wood fuses.

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . . Electrical Engineers, Designers and Consultants

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TRADE MARK

PRESSURE TREATMENTS of Southern Pine Poles, Crossarms, Conduit, Cover Plank, Ground Wire Moulding with No. 1 Creosote Oil or Pentachlorphenol are carried in stock permitting prompt shipments of carload and less than carload orders. Mailing address: P. O. Station "A", Atlanta, Ga.

WILLIAM C. MEREDITH COMPANY, Inc.

Treating Plant: East Point, Ga. — Mailing Address: P. O. Station "A", Atlanta, Ga.

KLEIN

"Pole Master" CLIMBERS*

Gaff is in line with the leg bone.

"solid comfort" for linemen

■ There's greater comfort for the lineman in the *new* Klein "Pole Master" Climbers. Designed as a real working pair . . . with one climber especially for the right and the other for the left . . . they have an extra wide stirrup for greater arch support.

Leg irons are tough and dependable, yet flexible and tapered in width and thickness. Ankles and calves get better support . . . chafing is practically eliminated. And the scientifically offset shank brings gaff in proper line with leg bone, providing real security . . . solid comfort.

"Pole Master" Climbers are forged from high quality, special alloy steel. A wrought, triangular-shaped ring at ankle assures proper set of ankle strap and provides additional comfort . . . safer, longer strap life. "Pole Masters" . . . like all Klein climbers . . . are individually tested and suitable for linemen of any weight.

1945 POLEMASTER CLIMBERS Riveted Top Wrought Loop, Triangular Ring at Ankle (average weight) 2⅞ lbs. per pair. (With this Climber, use Ankle Strap No. 5301-16 or No. 5301-26).

* *Matched Right and Left Climbers*

ASK YOUR SUPPLIER

Foreign Distributor: International Standard Electric Corp., New York

KLEIN TOOLS EST. 1857 TRADE-MARK REG.

Mathias KLEIN & Sons

Established 1857 — Chicago, Ill., U.S.A.

3200 BELMONT AVE. CHICAGO 18, ILL.

acute labor areas, we are experiencing less difficult than previously in finding workers for our factory. We are still plagued, however, with a high rate of labor turnover and a general lowering of individual productive efficiency and effort.

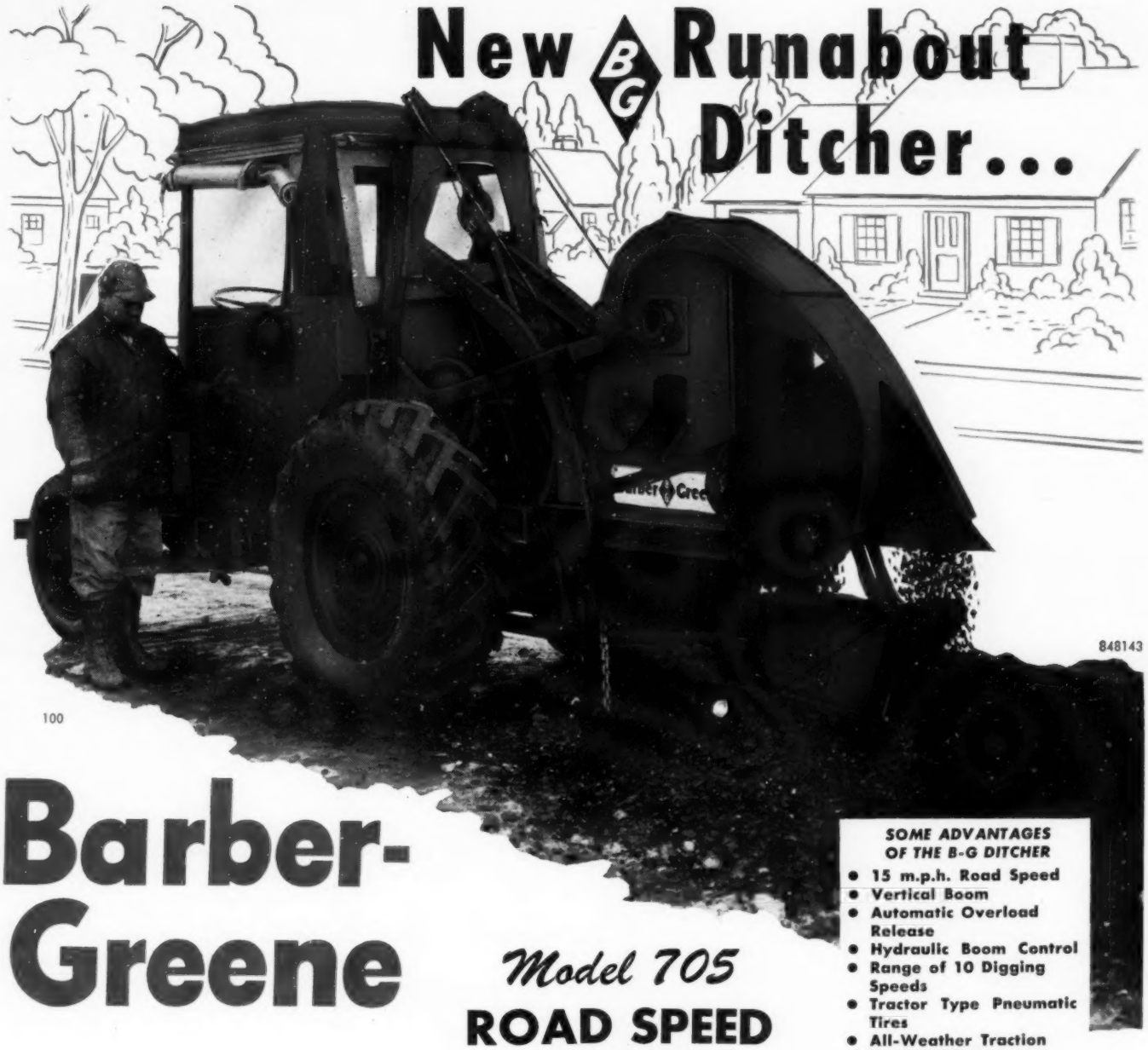
Barring any basic change in our national economy, present long deliveries on new equipment appear certain to continue for some time to come. There has been no noticeable slackening in demand for telephone equipment due to the continued increased use of telephone facilities and the steadily increasing trend toward conversion to automatic service.

Speaking on behalf of all the Independent manufacturers and suppliers, we want you to know that we are doing everything possible to expand production and to meet your current requirements. Your problems are our problems, and the large number of held orders with which many of you are faced are a cause of great concern to us as well as to you.

For your part, you can help materially by anticipating your requirements as far in advance as possible. Also, in view of the long deliveries currently prevailing on orders for new central office equipment, it is essential that you review periodically all outstanding orders so that the manufacturer can be advised in ample time of any necessary changes due to changed conditions. We have had many instances in recent months where last minute changes had to be made during the installation to provide for changed circumstances not anticipated at the time the orders were placed, and had the operating companies called these points to our attention at an earlier date, much trouble could have been avoided for all concerned. In fairness to all, we manufacturers have no alternative but to fill orders in the same sequence with which they are received, except in cases of absolute emergency, and your cooperation is required to hold such emergencies to a minimum.

Much progress has already been made toward catching up with the present abnormally heavy demand for telephone service. By working together in the proper spirit of cooperation, each recognizing the other's problems, you and we can all look forward to that happy day when held orders will be a thing of the past and the best telephone service in the world once more will be available to all who desire it.—*Address presented during the* 1948 *Convention of the Wisconsin State Telephone Association.*)

New B-G Runabout Ditcher...



848143

100

Barber-Greene

Model 705
ROAD SPEED 15 M.P.H.

SOME ADVANTAGES OF THE B-G DITCHER

- 15 m.p.h. Road Speed
- Vertical Boom
- Automatic Overload Release
- Hydraulic Boom Control
- Range of 10 Digging Speeds
- Tractor Type Pneumatic Tires
- All-Weather Traction
- Hydraulic Brakes
- Automotive Steering
- Year-round Operation

Here's the machine that's been sorely needed in scattered service trenching . . . it's the B-G Runabout Ditcher, driven from job to job by its operator at 15 m.p.h. Cutting 5½" wide and down to 4' deep, the Runabout offers ten cutting speeds for most efficiently meeting the local conditions. It has proved its ability to cut through such difficult materials as frozen ground and bituminous pavement.

Mounted on pneumatic tires, this Ditcher is easy on walks and lawns, making it ideal for house connections. Simply raising the boom makes it ready for travel. Requiring no trailer, the Runabout is a completely one-man machine, establishing a new standard of economy in ditching for gas, telephone, water and power lines. It is ready for work at the next job upon arrival. No unloading, no adjustments, no conversion parts. Designed for simple operation and easy servicing, the B-G 705 Ditcher uses IHC-I-6 Tractor Components. For complete information about this and other B-G Ditchers, see your Barber-Greene Representative or write, Barber-Greene Company, Aurora, Illinois.

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Constant flow Equipment

LOADERS | PERMANENT CONVEYORS | PORTABLE CONVEYORS | COAL MACHINES | BITUMINOUS PLANTS | FINISHERS | DITCHERS

(Continued from page 34)

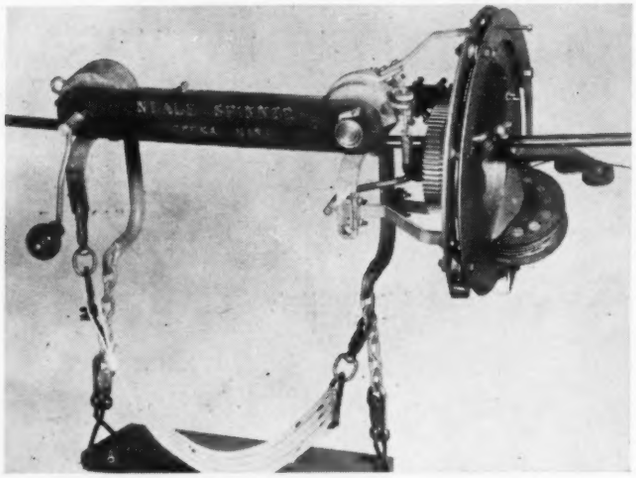


Fig. 10—Propelled-type spinner.

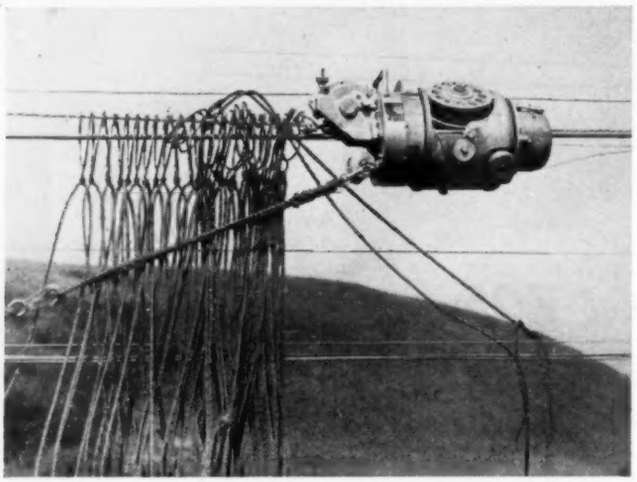


Fig. 11—Spinning cable using temporary rings.

endwise along the strand through temporary rings. The second is to reel out the cable on the ground underneath the strand, then spin back to the reel—with the spinner picking up the cable as it moves. The third method is to drive along the run with the reel, unreeling and spinning the cable directly from the reel to the strand.

The first method is the slowest of the three. It is always necessary, however, when there are many obstructions in the way or when the strand is above power wires or buildings. The reel of cable is set up at one end of the run, on a trailer, cable jacks or built-up shoring so that it can turn freely. A .109 or larger wire is then pulled along the route of the strand. This wire is attached to the end of the cable with a woven wire grip, and the cable is pulled through a cable roller about three or four feet past the first pole. A set of temporary cable rings is then placed around the cable and strand in a bunch at the pole. These rings are fastened some six or eight feet apart to a small rope (Figure 11). One end of this rope is secured to the pole, while the other is attached to the end of the "pulling in" wire along with the cable.

THE CABLE is then pulled to the next pole, and as it moves the temporary rings distribute themselves along the span. Another set of rings is used for each of the other spans and the cable is pulled along

STROMBERG-

THIMBLEYE

TWINEYE

TRIPLEYE

better guy installations with improved

thimbleye

Thimbleye, Twineye and Tripleye Anchor Rods and Guy Fixtures offer more protection to guy strands.

The new improved eye is full-rounded to prevent kinking at any angle, or flattening under tension. Injury to galvanizing, with consequent rusting, is eliminated and slack pulling is made easy since guy strand passes through the eye smoothly without kinking, bending, or binding.

The improved eye is drop-forged on the rod as a perfectly shaped thimble and the sidewalls and groove of the eye extend completely around the head of the rod. Grooves are deeper and give better support, conforming in depth and width to the largest cable size used with each rod or guy fixture.

STROMBERG-

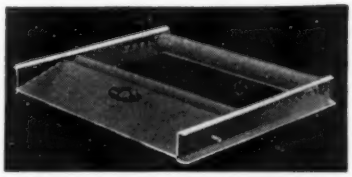
BRANCH OFFICES: CHICAGO ANSAS

RG–CARLSON Recommends

speed *reel-handling with* roll-a-reel

Handling heavy reels of wire, cable, steel strand or rope becomes amazingly easy, economical, and safe with Roll-A-Reel. This essential device saves time and money, both in the warehouse and on the job. Sturdy and simple, with "Tip-Toe" operation, it makes unloading or loading reels as easy as handling a spool of thread.

- Heavy gauge steel frame, capacity up to 2,000 lbs.
- Light-weight and portable; strong ball-bearing rollers.
- Low, slanted front for easy loading and unloading, eliminating use of jacks or other troublesome devices.
- Simple, positive roller lock makes reel removal easy.
- Width 30″, depth 28″, height 3½″, weight 50 lbs.
- Stands upright in any end position for safety, convenience.
- Rear roller can be adjusted immediately for any reel size.
- Built for years of trouble-free service.



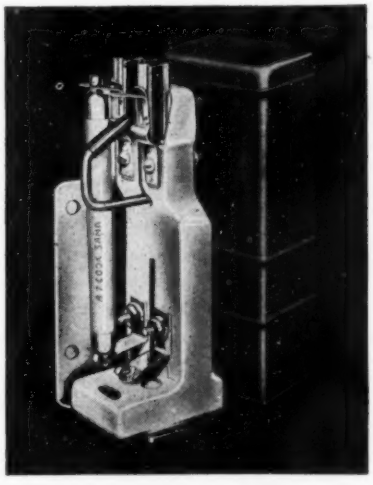
STYLE A—FOR REELS UP TO 28″ WIDE

Also available in Style B for 2 reels 24″ wide, or one reel 48″ wide. Capacity 4,000 lbs.

cook type 0 *sub-station protector*

This single circuit protector, equipped with fuses and lightning arresters, is unexcelled for either indoor or outdoor use. Special Cook-engineered features include:

1. Heavy white glazed porcelain designed to prevent surface leakage between current-carrying parts.
2. Tru-Gap high-potential dischargers that will not ground the line.
3. Phosphor bronze fuse and arrester springs, zinc hood, Everdur studs and washers. Hood is grounded when in place.
4. Choice of types and lengths of Cook Telephone Fuses.



Replace Operator's Batteries with long life

electrox battery eliminator

Type PA-05004

Plugged into your light circuit, the PA-05004 will deliver a constant, humless direct current to the operator's circuit on magneto switchboard. In case of power failure, Power-off Relay automatically transfers operator's circuit to stand-by dry cells.

Other Electrox models are available for Lamp Signal (PBX), and Automatic (PAX) Systems. Capacities of 0.5 to 6 amps, from 12 to 48 volts.

MADE BY THE RECTIFIER DIVISION, SCHAUER MACHINE CO.

ERG–CARLSON FACTORY, GENERAL OFFICES: ROCHESTER 3, N. Y.

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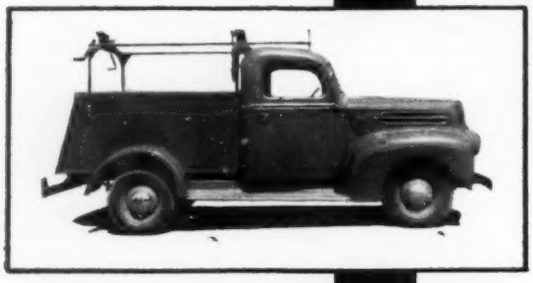
It takes RELIABILITY to win Repeat Business . . .



and YORK-HOOVER BODIES are being *re-ordered* by operators everywhere

Because they can count on specific purpose design, because they get dependability, because, through honest workmanship, they get low maintenance costs—operators come back to York-Hoover with re-orders time and time again. They've experienced the over-all *reliability* of York-Hoover Bodies and they want "more of the same."

To meet this healthy, steadily growing demand, York-Hoover has increased plant and production facilities so that we hope to say "prompt deliveries" in the not-too-distant future.

YORK, YORK-HOOVER BODY DIVISION CORPORATION PENNSYLVANIA

until the end of the run is reached. The end of the cable is securely fastened to the strand with a reasonable tension pulled in it so that it lies straight without bows or sags. The cable is then ready for spinning. The spinner is placed in position and pulled or propelled along the strand. As it moves it spines the cable at the strand and pushes the temporary rings ahead of it to the next pole, where they may be removed.

If none of the special temporary cable rings should be available, ordinary cable rings may be used. These are placed around the strand and the "pulling in" wire at intervals of eight or ten feet. Since, however, they will not slide along the strand ahead of the spinner, it is necessary for a man to ride with or ahead of the spinner to remove them as the cable is spun.

The second method is used along clear routes where there are not many obstructions but where it is not possible to haul the reel along directly under the strand. The reel is set up at one end of the run, and the cable is pulled out on the ground under the strand. The end of the cable is then fastened to the strand, and the spinner placed in position. As it is pulled back toward the reel and moves along the strand it picks up the cable and spins it into place. The weight of the cable as it is lifted from the ground serves to give proper tension during and after spinning.

The third method is the fastest and most economical. It can only be used, however, where the strand is free from obstructions and the reel of cable can be hauled along the route on the same side of the poles as the strand. The tip of the cable is fastened to the strand at one end of the run and the spinner is placed in position. A cable placing shoe is attached in front of the spinner. One tow line is attached to the spinner and another to the shoe. The other ends of these lines are fastened to the trailer or truck. The reel of cable is then pulled along the route. As the cable pays out, the shoe and spinner are pulled along by the truck and the cable is spun directly from the reel. As in the second method, the weight of the cable tends to give it the proper tension as it is spun.

(To be concluded in the July issue of TE&M. Other installments of this popular series appeared in the April and May issues of TE&M.)

A HANDBOOK for Telephone Men

INDEX—Pole Line Design
DATE—June 15, 1948

SUBJECT—Pole Classification System, Douglas Fir and Lodgepole Pine Poles

Table No. 1—Minimum Dimensions for Creosoted Douglas Fir Poles. (Based on Specifications by American Standards Association)

Class	1	2	3	4	5	6	7	8	9	10
Min. Cir at Top	27"	25"	23"	21"	19"	17"	15"	18"	15"	12"
Length of Pole (Feet)*	Minimum Circumference at Six Feet from Butt (Inches)									
16					21.5	19.5	18.0			
18			26.5	24.5	22.5	21.0	19.0			
20	31.5	29.5	27.5	25.5	23.5	22.0	20.0			
22	33.0	31.0	29.0	26.5	24.5	23.0	21.0			
25	34.5	32.5	30.0	28.0	26.0	24.0	22.0			
30	37.5	35.0	32.5	30.0	28.0	26.0	24.0	No minimum butt dimensions specified for pole classes 8, 9, and 10.		
35	40.0	37.5	35.0	32.0	30.0	27.5	25.5			
40	42.0	39.5	37.0	34.0	31.5	29.0	27.0			
45	44.0	41.5	38.5	36.0	33.0	30.5	28.5			
50	46.0	43.0	40.0	37.5	34.5	32.0	29.5			
55	47.5	44.5	41.5	39.0	36.0	33.5				
60	49.5	46.0	43.0	40.0	37.0	34.5				

**Douglas fir poles are specified in lengths of up to 90 feet by the A.S.A., but lengths of over 60 feet are rarely, if ever, used in telephone pole line construction.*

Table No. 1—Minimum Dimensions for Lodgepole Pine Poles. (Based on Specifications by American Standards Association)

Class	1	2	3	4	5	6	7	8	9	10
Min. Cir at Top	27"	25"	23"	21"	19"	17"	15"	18"	15"	12"
Length of Pole (Feet)*	Minimum Circumference at Six Feet from Butt (Inches)									
16					22.0	20.5	19.0			
18			27.5	25.5	23.5	21.5	20.0			
20	32.5	30.5	28.5	26.5	24.5	22.5	21.0			
22	34.0	32.0	30.0	27.5	25.5	23.5	22.0			
25	36.0	33.5	31.0	29.0	27.0	25.0	23.0			
30	39.0	36.5	34.0	31.5	29.0	27.0	25.0	No minimum butt dimensions specified for pole classes 8, 9, and 10.		
35	41.5	38.5	36.0	33.5	31.0	28.5	26.5			
40	44.0	41.0	38.0	35.5	33.0	30.5	28.0			
45	46.0	43.0	40.0	37.0	34.5	32.0	29.5			
50	48.0	45.0	42.0	39.0	36.0	33.5	31.0			
55	49.5	46.5	43.5	40.5	37.5	34.5				
60	51.5	48.0	45.0	42.0	38.5					

**Lodgepole pine poles are specified in lengths of up to 75 feet by the A.S.A., but lengths of over 60 feet are rarely, if ever, used in telephone pole line construction.*

Roundtable LINE and DESK Discussions

Edited By
J. S. REED, JR.

Q. Recently, we have been getting plastic coated station wire and drop wire. The insulation on both kinds of wire seems very much alike in their toughness and imperviousness to moisture. Could we use inside wire runs outside the buildings, as for example, from an outside protector to the wire entrance and then inside, without having to use two kinds of wire (bridle wire and station wire) joined together at a connecting block?

A. Although it is true that plastic coated wire is very durable, we would hesitate to recommend it for outside wire runs. The plastic coating is very thin compared to the coating on drop wire and the size of the conductor (No. 22 gauge) would subject it to breakage as the thin plastic coating probably would not support it in the stress of exposure to the weather elements.

This wire, however, can be successfully utilized in damp basements, provided that it is run in drive or bridle rings (wiring nails may crack the insulation). It is our thought that manufacturers may have developed a type of station wire that is suitable for both inside and outside wire runs; in other words, a plastic coated bridle wire, and in that event, this kind of wire would be preferable to ordinary station wire for this purpose.

• • •

Q. When transposing physical circuits on drop brackets in a crossarm lead, how should the brackets be arranged on the crossarm and what would be the position of the line wires on the insulators?

A. When using transposition drop brackets, the arrangement shown in Figure 1 is suggested. As indicated in the illustration, the odd numbered wires are on the crossarm insulators and the even numbered wires on the drop bracket insulators. (The normal pin positions on the crossarm are numbered consecutively from left to right.) When stringing the wire for the No. 6 pin position, it is necessary to unfasten the interferring crossarm brace to locate the wire on the drop bracket insulator and then refasten the brace.

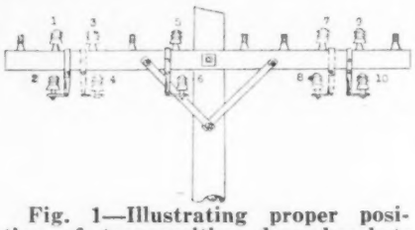


Fig. 1—Illustrating proper position of transposition drop brackets and line wires at a transposition point in an open-wire lead.

• • •

Q. Why are phantom circuits in rural leads more troublesome than the same kind of circuits in toll leads?

A. It is a fact that many telephone men have been disappointed by the results obtained when existing physical circuits are phantomed, for the purpose of serving additional subscribers with the least possible construction expense. Phantom circuits ordinarily should not give trouble when they are properly installed and maintained. Such circuits, however, are very susceptive to power line noise induction and cross talk, if the side circuits are out of balance for any reason. Causes of unbalance are high-resistance splices, leakage due to contact with plant growths, and inadequate or improper transposition of the wires.

Toll lines are well constructed, high quality insulators are used to reduce leakage to a minimum, and transposition points for both phantom and side circuits are carefully located in accordance with a standard transposition scheme specially designed for phantom circuits. The lines are kept free from any amount of contact with tree growths, and high resistance splices are avoided. The toll lead is often routed over private right of ways, thus reducing power line parallels to a minimum.

Rural open-wire leads, on the other hand, are usually not so well constructed and maintained as are toll leads. For the most part, they are located on roads and highways where they are subject to considerable tree interference and where they often parallel high voltage farm distribution lines. It is not easy to properly transpose the wires because of the irregular pole spacings that occur in rural leads.

Phantom transpositions in rural lines are not favored by the larger telephone companies. If such circuits must be established, it is usually more satisfactory to phantom the main lines up to the point where the first connection is to be made to a farm residence and then place pole mounted repeating coils for obtaining the physical circuits to the farm stations. The main lines, over which the phantom circuit is carried, must be kept free from any condition that would cause the slightest degree of unbalance. Ground ringing arrangements are not practicable when phantom circuits are utilized.

Before proceeding with the installation of any proposed phantom arrangements, you should consult your telephone distributor or manufacturer on the feasibility of these arrangements.

• • •

Q. Would you say there was any danger of damage to interior equipment as the result of not heating unattended dial exchange buildings?

A. Dial equipment in unheated buildings has been known to function satisfactorily even at extremely low temperatures. There is, however, a reduction in storage battery capacity at low temperatures, which might have an effect on the operation of the equipment during peak periods. There is no danger of freezing the battery electrolyte, unless an unfortunate accident causes the battery to be discharged to a low value, and even then, the weakened electrolyte will freeze at 10 degrees F. or less.

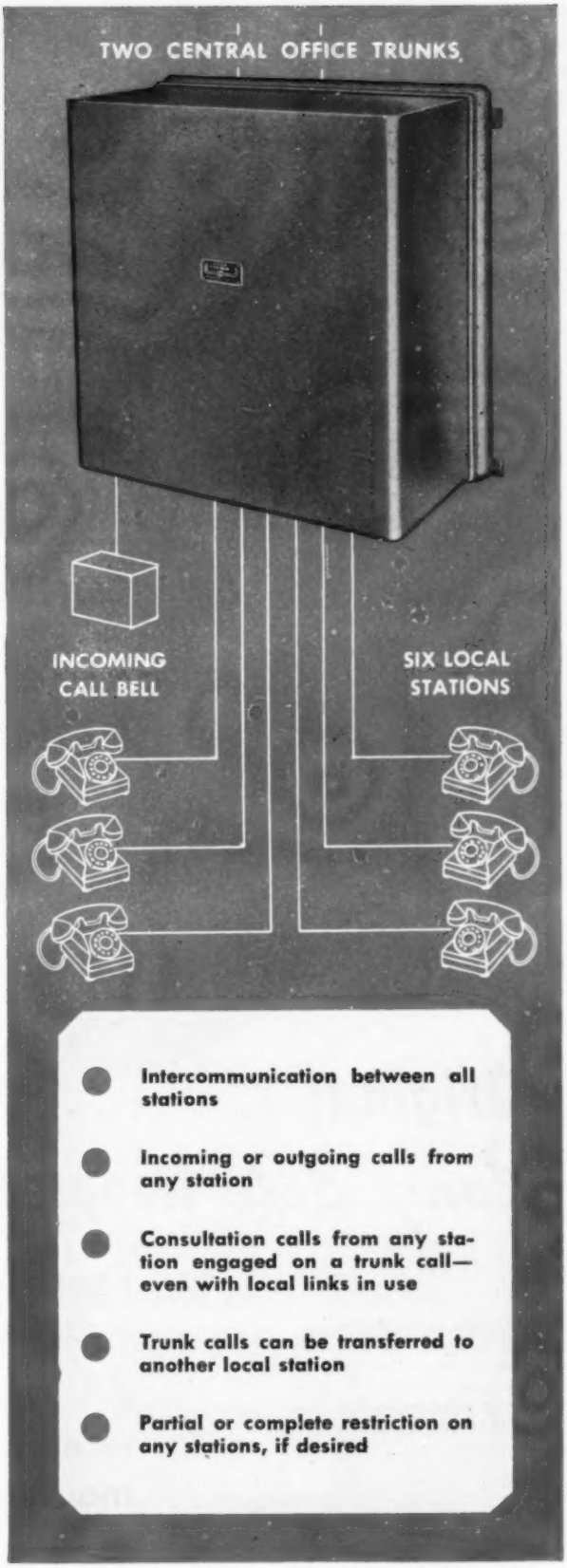
Federal's New

6E PABX

COMPACT

LOW COST

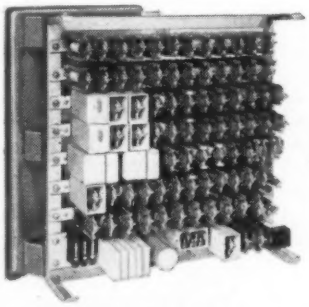
VERSATILE


TWO CENTRAL OFFICE TRUNKS
INCOMING CALL BELL
SIX LOCAL STATIONS
Intercommunication between all stations
Incoming or outgoing calls from any station
Consultation calls from any station engaged on a trunk call—even with local links in use
Trunk calls can be transferred to another local station
Partial or complete restriction on any stations, if desired

Provides automatic intercommunication for stores, offices, small plants, and large homes

HERE'S a new Private Automatic Branch Exchange that will enable you to provide even your *smallest* customers with the finest in automatic telephone service.

The entire exchange measures only 18″ by 18″ by 8″, and weighs only 60 pounds. It is contained in a compact, dust-tight cabinet arranged for wall mounting. All working components are mounted on a hinged relay gate which is readily accessible from both sides.



Federal's 6E PABX, with cover removed and hinged relay gate swung open.

The 6E PABX provides two central-office trunks and six local stations—with trunk service and intercommunication for each local station. Requires only 2 wires and ground for connection to each station. Assures complete secrecy of all calls — no other station can "break-in" or "listen-in" on any other conversation. Provision for "consultation" calls permits a party engaged on a trunk call to "hold" it temporarily while calling another local station for needed information or advice.

To get the *complete* story on this new 6E PABX, write Federal today. Dept. G849

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The Original *Long Life* Neoprene Jacketed Telephone Wire

For Drop, Bridle, or Distribution, and direct burial underground.

All types are highly resistant to abrasion, high voltage breakdown, sunlight, moisture, acids, and flame.

The Difference in Cost is Pennies
The Difference in Life is Years

* TELEPLATE is a lead coating applied to the conductors to resist corrosion, then a coating of brass is electroplated over the lead to provide enduring adhesion, — YES, Adhesion equal to the tensile strength of the conductors.

GraybaR Quality Since 1869 — Distributed by GraybaR Electric Company

® REG. U.S. PAT. OFF.

The WHITNEY BLAKE Company

New Haven, Connecticut, U.S.A.

Washington Bureau Reports

(Continued from page 31)

connected, or switched off and on, at the will of the user, it was noted that the FCC has not ruled out inductive recorders. It does mean, however, that since the only practical tone warning devices are those involving physical connection of the device to the telephone equipment, and a tone warning is required, that in practical effect at this time only physically-connected recorders can be legally installed.

A tone warning device for an inductive recorder would require an expensive installation for each recorder similar in principle to the Baltimore & Ohio's inductive railroad radiotelephone system, it was noted. Thus such equipment is considered too expensive for practical use with recorders, but the FCC's order specifically does not bar the door to any future developments in that field.

No Legislation Affecting Telephone Industry

WHEN THE death knell sounded for reductions of excise taxes on communications services in this session of Congress, it virtually assured that the session would wind up nearly barren of legislation affecting the communications industry.

The end of the last faint hope that the communications excises would be reduced to a more equitable level this year came when the House Ways and Means Committe reported out a tax revision measure not affecting in any way the levies. In general, the bill calls for revisions in the internal revenue code which will cost the government little in the way of diminished revenues. Inclusion of communications excises at this late date would have been a meaningless gesture anyway, with no chance of getting such a bill through Congress before the scheduled adjournment date.

Other measures which would have affected the industry, for better or worse, which are not receiving Congressional sanction include revision of the Taft-Hartley Act; Social Security changes; raising the statutory minimum wage; the White Bill to

STAINLESS STEEL

Type 316

SPINNING WIRE

for your Cable Spinning Jobs

•

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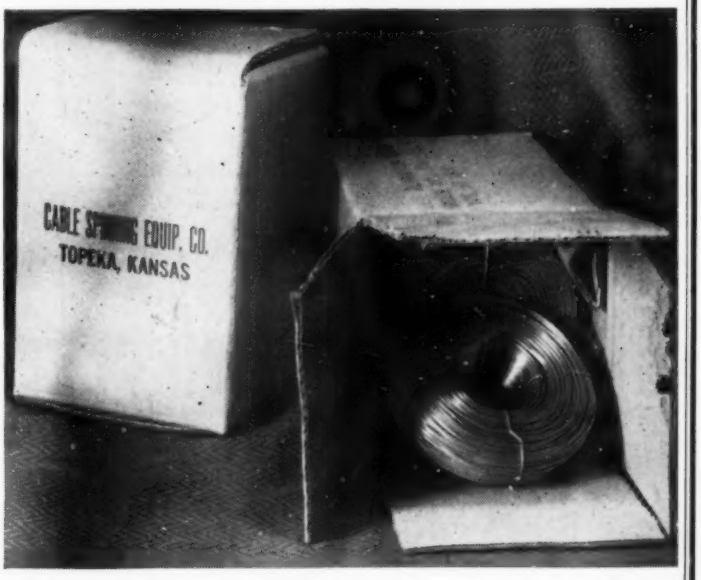

You won't use inferior Cable! Why use inferior spinning wire?

It has been definitely proven over a period of years that the best wire is by far the cheapest in the long run.

Type 316 Chromium Nickel stainless steel is by far the most corrosion resisting, long life spinning wire available to date.

Be sure with a spinning wire that will not let you down under the most severe conditions.

Packed 6 coils to the carton, 650' to the coil. Available for immediate shipment.

Cable Spinning Equipment Co.

Topeka, Kansas

GraybaR
TELEPHONE SUPPLIES
BULLETIN

POWER SUPPLY

Nothing is more important to the satisfactory operation of your circuits than steady, dependable power. Fortunately, it's easy to *assure* such power — by using the thoroughly dependable power-supply items which Graybar distributes. Here are some of them:

Exide storage batteries — in a range of types and sizes designed for telephone service

Electrox, Flotrol, General Electric, and Raytheon battery chargers

Eveready Columbia dry cells — the long-lived cells for local battery service — with spring terminals or screw connections

Holtzer-Cabot, Leich, and Lorain Sub-Cycle ringing machines, including machines for harmonic ringing

Whatever your requirements, for maintenance or new construction, there's no easier way to get them than by calling your near-by Graybar office.

A Graybar Telephone Specialist will gladly help you solve any problem you may have. *Graybar Electric Company. Executive offices: Graybar Building, New York 17, N. Y.*

4562

EVERYTHING IN TELEPHONE SUPPLIES via GraybaR

IN OVER 100 PRINCIPAL CITIES

TIME-SAVING INFORMATION SERVICE —

Whenever you want facts about telephone supplies, lighting equipment, or any other electrical items, just call the near-by Graybar office. That's the quickest, easiest way to get catalog, price, or delivery information. Graybar Specialists are prepared to supplement this information with sound recommendations on selection and application.

reorganize the FCC; and the National Science Foundation proposal.

Hennock Confirmation Subject to Guesswork

WASHINGTON political observers have been unable to reach any agreement whatsoever on the confirmation possibilities of Miss Frieda B. Hennock, the first woman in history nominated to be a member of the FCC.

It is certain—and has been announced by the Senate Republican Policy Committee—that the GOP is loath to confirm any Democrats to long-term appointments, in the assumption that the Republicans will win this fall's elections and thus can name appointees from their own ranks to vacancies which otherwise would be filled by Democrats with long leases on the posts. If Miss Hennock were a man, she wouldn't have a chance in the world of Senate confirmation.

No one knows whether Miss Hennock will accept a recess appointment if the Senate does not act on her appointment. Theoretically at least, her tenure in office then would be quite short-lived. But there appear to be reasons for the belief that she will accept such an appointment.

Bell System Rate Boosts

A COMPILATION by the National Association of Railroad and Utilities Commissioners shows that Bell System companies have received an average of 81% of their total rate increase requests in 20 states and the District of Columbia, where action on the petitions has been completed.

The NARUC compilation showed that the boosts requested or instituted by Bell System companies total $240,528,000. Of this amount, $136,849,000 has been made effective or granted. Petitions totaling $80,118,000 are still pending before state regulatory bodies, although both the pending and granted columns included $7,628,000 of boosts ordered on a temporary basis. Actually, other temporary increases were not included in that figure, so the comparison might be more accurate if the pending total was listed as about $72,500,000.

The NARUC summary showed that in eight states and the District of Columbia, including Texas and Iowa, where there are no state commissions, the amount made effective was 100% of that sought. In the remaining states which have completed action the percentages range from 58% in Montana to 98% in South Carolina.—THE END

Geo. M. Lebedeff Joins Lenkurt Electric

George M. Lebedeff, formerly chief engineer, Heintz & Kaufman Ltd., has joined Lenkurt Electric Company, San Carlos, California, as a carrier engineer. A specialist in quality control and

GEO. M. LEBEDEFF has joined Lenkurt Electric Co. as a carrier engineer.

author of material on the subject, Mr. Lebedeff introduced into the San Francisco Bay area the first wartime statistical quality control system on electron tubes. Earlier, after graduation from the University of California, Mr. Lebedeff was associated with Federal Telegraph Co., then in Palo Alto, Calif. He is a member of IRE (Institute of Radio Engineers) and the American Statistical Association.

◆

"Intelex" Helps Solve Problem Of Arranging Reservations

A machine which will help solve the traveler's thorny problem of arranging airline, rail and hotel reservations has been introduced by International Telephone & Telegraph Corporation.

This gadget, called the Intelex, combines time-tested telephonic parts and war-proved electronic devices in an electric brain. Among other things, it can determine availability of space and assign requested or alternate reservations in a matter of seconds.

The system consists of a central machine—the reservoir of information about reservations between all points—and a number of subsidiary offices which feed information and inquiries to the reservoir by teletype over leased telegraph wires. These central office functions are now performed manually on many airlines.

If an airline passenger, for example,

THERE'S A *Runzel* RECEIVER CORD FOR EVERY TYPE RECEIVER

Whatever your receiver equipment—from the old style wall type to the most modern dial desk type—there's a Runzel receiver cord that will do a better, longer-lasting job. Runzel receiver cords are offered in a choice of colors, black or brown. Special length cords can be speedily made to order.

You can rely on Runzel cords for your receiver, switchboard, desk stand, operator and hand set needs.

It's simple to order Runzel cords —by Runzel code, original manufacturer's code, or by sample cord.

RUNZEL CORD & WIRE CO.
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PROTECTION AND DISTRIBUTION EQUIPMENT
for Sub Station, Cable and Central Office
Look to us for a complete line

O-7 Station Protector

This protector is so widely accepted as to be virtually the standard of the Independent telephone industry. It is equipped with the same fuse as all Cook cable terminals. Special porcelain base, Everdur bolts and studs, phosphor bronze clips and grounded zinc cover give this protector top position.

Available from stock.

Each.....$1.50

Other station protectors in the O series available promptly.

SINCE 1926
TELEPHONE REPAIR & SUPPLY COMPANY
DAN'L H. McNULTY, President and Manager
1760 Lunt Avenue Chicago 26, Illinois

wants a reservation from New York to Denver, he calls the airline reservation office. The telephone operator there writes out his request and hands it to a nearby teletype operator.

When the teletype operator types out the reservation request, a series of electrical impulses are transmitted over telegraph wires to the central "brain" at, say, Kansas City. The "brain" sorts through available space at lightning speed. If the space requested is available, the "brain" automatically teletypes the confirmed reservation back to the inquiring office. If the requested space is not available, the "brain" will suggest alternate accommodations. All in a matter of less than half-a-minute.

◆

New convention display units developed by Stromberg-Carlson will travel more than 20,000 miles this year.

Stromberg-Carlson Develops Convention Display Units

Two large telephone convention display units, designed for easy assembly and disassembly without damage to component parts, were introduced at the recent convention of the Ohio Independent Telephone Association by the Stromberg-Carlson Company, Rochester, New York. The units will be used for similar occasions in more than a score of cities this year and will travel 20,000 miles before returning to Rochester.

Perennial participants in state telephone conventions, Stromberg-Carlson has been faced with the problem of shipping and setting up displays with as many as 60 individual parts. Prior to the development of the new units, separate packing for later assembly in hotel rooms was required. Damage and breakage ran high and after each showing the exhibits had to return to the home office for repair or replacement.

The two units—one for telephone instruments, the other for Stromberg-Carlson's XY dial switching equipment—are completely self-contained in hardy 6′ by 4′ by 1′ cases easily handled by two men. Each case opens in much the same manner as a workman's tool box. As the lid is raised,

VAPOR DRYING *seals the live strength in* **Taylor-Colquitt Poles**

You get stronger poles, with longer life, when you choose Taylor-Colquitt poles. The T-C method of Vapor Drying retains the live strength of the tree. It removes the moisture without checking the fibers—prepares the wood for complete and even distribution of the preservative to the still-living cells and fibers. The result is a longer-lasting pole with greater resistance to decay, and with the live strength sealed in.

RECOMMENDED AND DISTRIBUTED BY

AUTOMATIC ELECTRIC SALES CORPORATION

1033 W. VAN BUREN ST., CHICAGO 7, ILL.

a back panel and two levels of shelves automatically unfold to reveal an attractive display of telephone equipment and parts permanently attached. A concealed extension cord may be plugged into any convenient wall socket to light the built-in fluorescent illumination. Retractable legs unfold and lock into position, and reassembly for packing and shipping is equally simple.

◆

Dial Service Comes to Alaska; Kellogg Installed at Kodiak

The first commercial dial telephone service in the territory of Alaska was officially opened to the public on Friday, May 21, when a cross-continent telephone and radio-telephone call was made between the new exchange, located at Kodiak on Kodiak Island, and Chicago, Illinois, and to Washington, D. C. This is the first public telephone service on Kodiak Island.

Mrs. Martha Cushing, owner of the new Kodiak Telephone Company and one of the few women in the telephone business in the Territory, started the 4,840 mile conference call from her office in the new exchange at the port of Kodiak at 8:30 A. M. local time, 1:30 P. M. Chicago Daylight Saving Time; and 2:30 P. M., Washington time. From there the call was relayed via Army Signal Corps radio-telephone to Seattle, Washington, where it was picked up and carried by long-distance land lines to Chicago and the national capitol.

In the ensuing conversation, Mrs, Cushing announced the successful installation to James H. Kellogg, Chicago, president of the Kellogg Switchboard & Supply Company, Governor

Delegate L. E. BARTLETT, Alaska's representative in Congress, at his office in Washington, D. C., as he took part in the cross-continent telephone call.

MRS. MARTHA CUSHING, owner of the Kodiak Telephone Co., at the new Alaskan exchange office making the first public telephone call from Kodiak Island to the United States on a conference call that included Chicago and Washington, D. C.—Photo by "Dawson of Kodiak."

Ernest Gruening of Alaska, Delegate L. E. Bartlett, Alaska's representative in Congress, and Colonel T. J. Tully, head of the Army Signal Corps' Alaskan Communications Service.

The 300-line Relaymatic switchboard and all subscriber's telephone instruments were manufactured in Chicago by the Kellogg Company. In addition the company supplied the auxiliary power equipment and all outside plant materials. The telephones are dial-operated 1000 series Masterphones.

◆

Buckingham Pole Climbers Adjust to Individual Worker

Adjustable pole climbers, with an extension shank or leg iron that can be set any desired length between 15 and 18½ inches—assuring an exact fit for any leg—are being introduced by Buckingham Manufacturing Co., Inc., Binghampton, N. Y.

This new adjustable climber has all the safety features that characterize Buckingham conventional climbers. The adjusting feature is simple and fool-proof. As shown in the illustration, the top strap assembly is joined to the lower portion of the leg iron by two rods fitting into telescopic sockets. The rods can be moved in or out to give the exact length desired; set screws in each socket clamp the movable upper part in place—resulting in a climber as rigid and safe as the fixed-length style. The length may be changed as often as desired.

An additional advantage of this iron is that the lineman, electrician or other worker has the precise length that is

Build LINE SECURITY with CHANCE ANCHORS

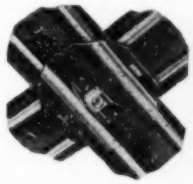
...the STEEL EXPANDING ANCHOR

Digs in and Holds!

Chance All Steel Expanding Anchors are specified by engineers who know the value of equal distribution of holding power.

Built of tough, heavy ribbed steel, they *dig in* to solid earth with a minimum of soil disturbance and *hold* without danger of creeping or pulling out. The powerful blades expand in opposite directions, equalizing strain. Grooved guideways eliminate side twisting. For 21 years Chance Steel Expanding Anchors have been on the job, giving complete satisfaction. Once they're in — they're in to stay!

Destructible Nut Retainer



Prevents the anchor from riding up the rod during installation. Permits driving the rod through the anchor into the ground when abandoning the anchor, and also acts as a truss brace.

You KNOW you can rely on CHANCE

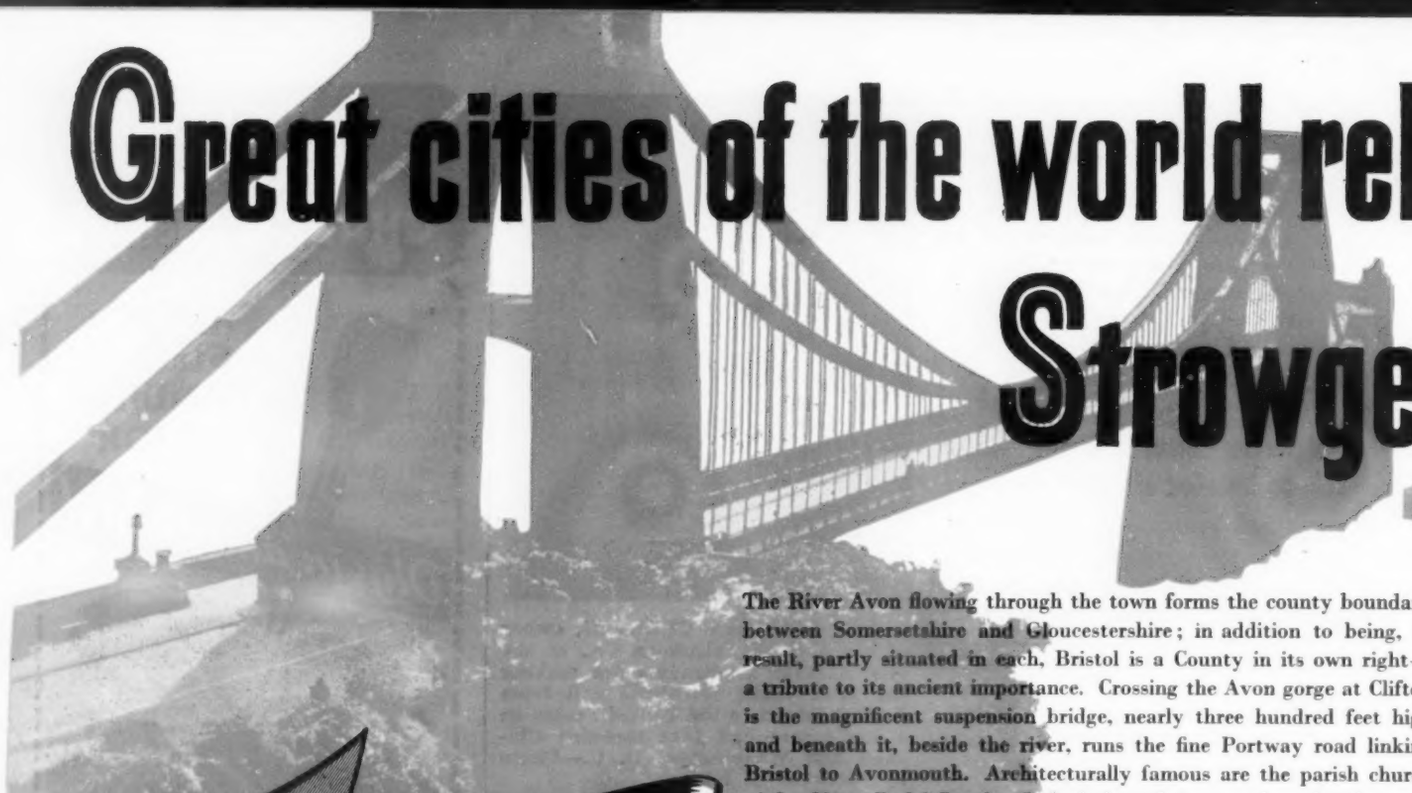
For greater line security — for proven anchor values — remember CHANCE, the world's largest anchor manufacturer—your *dependable* source for *dependable* anchors.

C4721

A·B·CHANCE CO. · CENTRALIA MISSOURI

Great cities of the world relup

Strowger

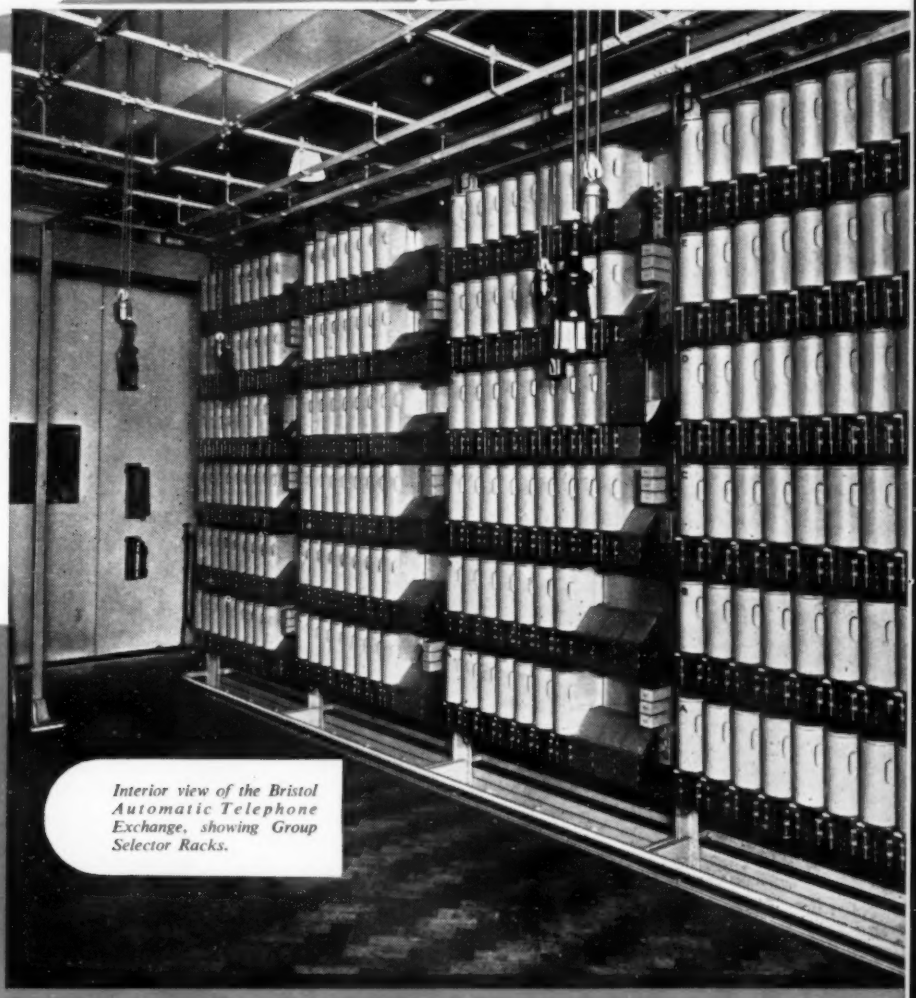


Bristol-

The River Avon flowing through the town forms the county boundary between Somersetshire and Gloucestershire; in addition to being, in result, partly situated in each, Bristol is a County in its own right—a tribute to its ancient importance. Crossing the Avon gorge at Clifton is the magnificent suspension bridge, nearly three hundred feet high and beneath it, beside the river, runs the fine Portway road linking Bristol to Avonmouth. Architecturally famous are the parish church of St. Mary Redcliffe, the Cathedral, and many other churches and old buildings, some now serving as business places. The Cabot Tower commemorates the voyages of John and Sebastian Cabot, whilst other buildings recall the romantic Guild of Merchant Venturers. In Bristol University hangs "Great George," a massive bell owing its title to three namesakes: King George V who declared the buildings open, Sir George Oatley, the Architect, and Sir George Wills who, with his brother Mr. Henry Wills, defrayed their cost.

Important as a manufacturing town and as a seaport, with fine town buildings and suburbs situated amongst the lovely Downs, Bristol has a great past and more important still, a great future.

ertelecommunications



Interior view of the Bristol Automatic Telephone Exchange, showing Group Selector Racks.

Strowger Automatic Telephone Equipment stalled to provide telephone service in Bristol nd throughout the surrounding district has two oints of interest. First, it linked subscribers in he largest telephone area in the West of England —which, incidentally was the first in Europe to stal C.B. Manual equipment—and second, it tilised for the first time in Great Britain the andardised single sided rack equipment having hannel type shelves. Use of these racks enabled uch improvement to be effected in the cabling, iring and trunk grading arrangements, due to he introduction of several new types of frames, uch as the trunk distribution frame, meter strip ame and line I.D.F. The racks were completely ired and equipped with Strowger selectors or lay groups and tested in the factory prior to spatch and, when placed in position on site, re thus ready for cabling.

Operating on the Strowger non-Director five-git system, the complete network consists of teen exchanges and of these ten were initially stalled and cut-over in November 1931 with the maining six following as the programme of nversion from manual working proceeded, to ter for an ultimate total of some forty-five ousand subscribers' lines. An auto-manual exchange was o located in the "Central" Exchange building to handle all auto-manual, manual—manual and long distance trunk traffic and directory enquiries for the area.

AUTOMATIC TELEPHONE AND ELECTRIC CO. LTD.

NORFOLK HOUSE, NORFOLK ST., LONDON, W.C.2
Temple Bar 9262 Cables: Autelco, London
STROWGER WORKS, LIVERPOOL, 7, ENGLAND

REGD. TRADE MARK

ACORN INSULATED WIRE

TODAY TELEPHONE WIRE has to be tough

Many years of specialization in the manufacture of communication wire has built a performance record for Acorn Drop Wire.

ACORN INSULATED WIRE COMPANY, INC.
225 King Street, Brooklyn, N. Y.
LEICH SALES CORP., 427 W. Randolph St., Chicago
LINDSAY SUPPLY CO., 4815 Superior Ave., Cleveland

ACORN'S exclusive Carton packaging preserves carefully developed QUALITY until installed . . .

Drop Wire—Bridle—Interior—Tree—Ground—Switchboard—Pothead—Cable Terminal—Instrument—Fixture—Buried Wire

Without Damage to Insulation—with

KEARNEY SNUB-R-GRIPS

This effective drop wire grip has amazing holding power through snubbing action, yet it does not damage the insulation. It's easy to take up or pay out slack after the grip has been installed by inching the wire through the grooved spiral. Snub-R-Grips are easily installed or removed.

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For complete information and prices, see your regular jobber or write —

JAMES R. KEARNEY CORPORATION
4236 CLAYTON AVE. • ST. LOUIS 10, MO.
Overhead and Underground Utility Equipment

New Buckingham climbers are adjustable; leg iron can be set any desired length between 15 and 18½ inches.

most comfortable for him, instead of to the nearest half-inch step, as provided in the size range of non-adjustable climbers. The shank in the Buckingham climber can be bent if desired to conform to leg contour.

Further utility and service life is built into the new Buckingham Adjustable Climber through the replaceable gaff construction, that eliminates climber discards because of blunted or broken gaffs The gaff ends in a husky lug that fits tightly into a hub on the shank, being fastened securely and immovably in place by a patented "Driv Lok" pin through the gaff base and the hub. This pin can be removed only by means of a hammer and punch.

◆

Suttle Introduces New Hydraulic Pole Jack

The Suttle Equipment Company, Lawrenceville, Illinois, was recently appointed exclusive distributor to the telephone distributor of the Van-Web Hydraulic Pole Jack.

According to the Suttle company the jack has a raise lift of 60 inches at the hook through the pulley that doubles the lift of the ram and is guaranteed to exert a 15,000 lb. pressure at the hook. Under tests a 16 inch butt, 40 foot pole buried 8 feet in the ground has been pulled with 8,000 pounds.

The jack with ram depressed is 41 inches long, and weighs 60 lbs. The pump handle is 25 inches long, and

In Mobile Service

ALL CALLS ARE URGENT!

That's why you need the Extra

PERFORMANCE and DEPENDABILITY

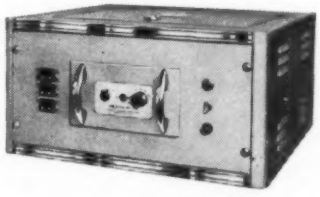
that you always get in

FEDERAL'S MOBILE TELEPHONE SYSTEMS

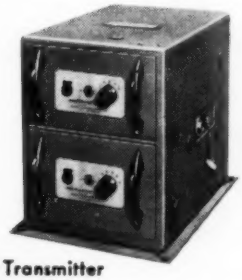
When a subscriber says "Mobile service operator, please," you know he is making an *important* call—otherwise it could wait. Dependability and performance of your mobile telephone system are *essential*—to be sure that calls get through quickly, surely, and clearly.

Federal's complete mobile radiotelephone systems are especially designed to give just that kind of service—with the added advantages of low installation, operating and maintenance expense. Mobile units are designed with safety factors far in excess of actual requirements for any type of vehicular operation—every unit has been subjected to severe vibration and temperature tests. Transmitter and receiver sections, with plug-in connectors, can be removed and replaced in a few seconds, for faster and more economical inspection and maintenance.

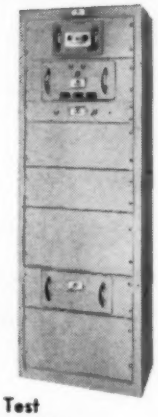
ALL COMPONENTS OF THE COMPLETE FEDERAL SYSTEM are coordinated and matched for maximum efficiency, dependability, and performance. Write Federal today for complete information on urban radiotelephone equipment. Dept. I249.



Land Receiver



Mobile Transmitter Receiver Unit



Test Transmitter

Land Transmitter

KEEPING FEDERAL YEARS AHEAD... is IT&T's world-wide research and engineering organization, of which the Federal Telecommunication Laboratories, Nutley, N. J., is a unit.

Federal Telephone and Radio Corporation

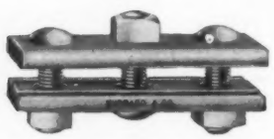
100 KINGSLAND ROAD, CLIFTON, NEW JERSEY

In Canada:—Federal Electric Manufacturing Company, Ltd., Montreal, P. Q.
Export Distributors:—International Standard Electric Corp. 67 Broad St., N. Y.

JOHN LINEMAN OFFERS..

The Hubbard GRIP of SECURITY

Cutaway view shows the increased contact area between clamp and strand which is afforded by Hubbard Parallel Groove Guy Clamps.



†No. 7461

The Hubbard No. 7461 Guy Clamp, with the straight, parallel groove principle, affords a uniform, non-buckling clamping area in contact with the strand. Special, high carbon, oval neck clamp bolts hold securely while tightening and resist stripping or elongation. Groove ends are slightly belled to prevent any possibility of the clamp cutting into the strand. Hubbard parallel groove Guy Clamps are made in light, medium and heavy styles; each accommodating a variety of strand sizes and each gripping the strand with the Hubbard Grip of Security.

†AT&T CO. STANDARD

ALSO—

HUBEYE NUTS ○ HUBEYE BOLTS
ANCHORS, PLATE AND SCREW ○ MANHOLE LADDERS
BRACKETS, POLE, CORNER AND HOUSE ○ EYE BOLTS-HUBEYE
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STORM GUY ATTACHMENTS ○ SIDE-WALK GUYS ○ SPAN CLAMPS
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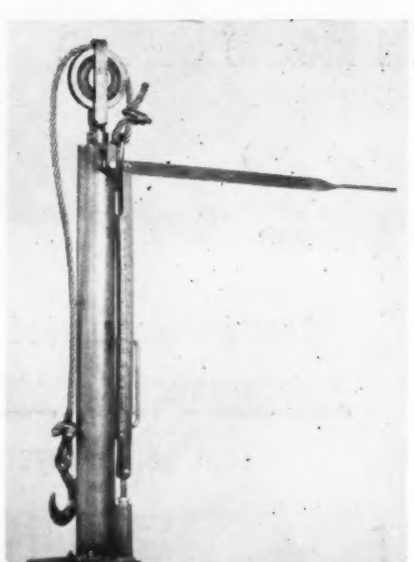
GUY PROTECTORS ○ GUY HOOKS ○ MACHINE BOLTS ○ POLE SEATS
GRADE CLAMPS ○ GROUND RODS ○ TRANSPOSITION BRACKETS

"HANG THE LOAD ON HUBBARD HARDWARE"

HUBBARD AND COMPANY

ESTABLISHED 1843

PITTSBURGH CHICAGO — OAKLAND, CALIFORNIA



Van-Webb hydraulic jack exerts 15,000-lb. pressure at the hook.

folds down to the side. A handle ring is mounted on the side so weight is balanced for carrying.

No special strength is required to operate the pump handle. The hook lifts ¾ inches on each stroke. A shut-off valve is located at the top of the cylinder and the ram can easily be pushed back in the cylinder when this valve is opened. The hydraulic pump is operated with No. 10 oil, pushing against the 1½ inch diameter ram. This is sealed in, but can be replaced occasionally for operating efficiency.

The pulley yoke is mounted on a loose piston so the entire yoke can be lifted out and a pike pole set in the cup at the top of the ram, for straightening poles. To set the jack up against a pole, requires only a base laid on the ground for leverage. The hook starts at the bottom of the jack, so one pull will clear most poles.

Full information will be forwarded upon request to the Suttle Equipment Co., Lawrenceville, Ill., or to New Products' Editor, Telephone Engineer Publications.

◆

A. B. Chance Co. Appoints Four Division Managers

Appointment of four division sales managers and a field engineering specialist by the A. B. Chance Company, Centralia, Missouri, has been announced by Kenneth R. Way, general sales manager.

The new division managers are Charles T. Nevins, Eastern division, New York City; O. M. Hullinger, Midwestern division, Chicago; W. A. Moss, Southwestern division, Dallas. Lester R. Crane is the newly appointed

field engineering specialist, with headquarters in Centralia, Missouri.

Mr. Nevins, until recently district manager in the Eastern states for Oliver Iron & Steel Corporation, has had many years of sales and service experience in the electrical industry. He succeeds J. R. Rice as Eastern division manager for the Chance company. Mr. Rice has been forced to move to Denver because of his health and will take over the territory there.

Mr. Hullinger comes to the Chance Company from Elastic Stop Nut Corporation, for whom he was Chicago manager. Earlier in his career he was for 10 years manager of transformer sales for Line Material, and, at one time, sales manager for Tips Tools before that concern was purchased by the Chance Company.

Mr. Moss, for many years Southeastern district manager, has been promoted to division manager in the Southeastern states. Assisting him will be L. C. Woolard, St. Petersburg, Florida, formerly a Midwestern representative for the company.

Mr. Argo, for three years Southwestern district manager, has been promoted to division manager for the states of Texas, Oklahoma, Louisiana and Mississippi.

Mr. Crane, formerly a Midwestern sales representative, is particularly well-qualified for his new position. He holds B.S. in E.E. and M.S. in E.E. degrees and has had considerable experience in handling switchgear problems.

◆

U. S. Rubber Announces Personnel Changes

The wire and cable department of United States Rubber Company has announced the appointments of Howard H. Weber as chief engineer of the department and A. S. Basil general sales manager. Mr. Basil has been associated with the company since 1926 and Mr. Weber since 1934. Both men have had wide experience in electrical sales and engineering.

Other changes announced by C. W. Higbee, manager of the department, are as follows: H. J. MacDonald, assistant to the manager; H. F. Johnson, assistant general sales manager; R. A. Walker, merchandise manager; J. A. Leuver, assistant sales manager in charge of distribution; D. B. Karlskind, assistant sales manager in charge of commodities, sales engineering and new projects; G. E. Hubrig, sales manager, western division; C. A. Bartron, chief sales engineer; A. E. Aune, manager, automotive and aircraft wire sales, and R. C. Cassidy, manager, Uskon sales.

Experienced linemen the world over have learned to depend on Bashlin equipment. **Safety belts with sliding "D" ring have been a Bashlin feature for more than 10 years.** Play safe at all times . . . use Bashlin Linemen's Equipment. Write for catalog today.

W.M. BASHLIN COMPANY
GROVE CITY 1, PA.

HANDSETS—200 OHM Carbon Mike and 2500 OHM Ear phone. Has 6 foot rubber cord and 2 plugs PL55 and PL68 Guaranteed..$2.50 each
Signal Corp Magnetic phone handset 1000 OHM Impedence Single Carbon Mike rated at 200 OHM with 6 ft. rubber cord
Brand new .....$2.50 each

HEADSETS—24000 OHM High impedence 2 rubber cushions and 8 foot cord with plug PL55 Never used $2.39
8000 OHM impedence headset guaranteed .....$1.25 each
600 OHM Impedence headset guaranteed .....$1.25 each

FIELD TELEPHONES—W.E. and Kellogg includes hand wound ringer and generator. French type headset and carrying case. Used but in perfect working order .....$7.95 each

REMOTE CONTROL UNIT TELEPHONE SYSTEM—Will work up to 50 miles with Ringer and Generator. Handset. Steel carrying case. Guaranteed perfect. .....$14.95 each

W.E. NO. 153 LOADING COIL CASE with No. 638 loading coil encased in vulcanized rubber jacket. For use with Telex wire List price $13.50 each Our price New .....$1.75 each

TELEPHONE MICROPHONE Kellogg PBX T28 with 10 foot cord and plug and swivel bracket New .....$5.50 each

RECEIVERS R-14 telephone, high impedence, light wt watchcase type, double magnet, black bakelite cap. .....25c each

TELEPHONE WIRE Single Conductor No. 20 gauge 7 strand, tinned, plastic covered. 1 mile for $5.00
Single conductor No. 18 gauge 7 strand 4 steel 3 copper all tinned, rubber covered overall, braid waterproof 1 mile $13.00
Single conductor No. 20 A.W.G. insulated, tinned copper, 10 strand of No. 30 A.W.G. polyrimilite insulated and covered with glass fibre white and black traces 1 mile.....$20.00

8 CONDUCTOR CABLE 2 ea No. 14 A W G and 6 each No. 18 AWG Each conductor individually rubber and coded, wrapped with cotton winding, cambric covered with wire braid and outside serve with black rubber. In lengths approx. 200 foot. .....$47.00 per M foot

CABLE, Submarine-Telephone, 7 strand No. 10 gauge, rubber insulated armored with 18 strand steel wire with heavy outside rubber cover, overall diam. ⅝ in. Reels approx. 6000 foot each Weight 3300 lbs. each Main uses in wire communications. .....$18.00 per M foot
300 foot reels of No. 12 Cadmium copper alloy. .....$1.25 each

HIGH AND LOW VOLTAGE GENERATOR. Power unit assembly including gear case and gear train with socket 1¾ inch diam with 1½ inch square cut out hole for crank, a governor and gear train assembly, generator supplying 300 volts milliamperes, 28 volts 160 milliamperes completely assembled Dimensions overall 6¼ in. long by 5½ in. wide by 6 in. deep Also has unit keyer for automatic transmission.
Price .....$4.50 each

Electronics in All Its Branches

TALLEN CO., INC.

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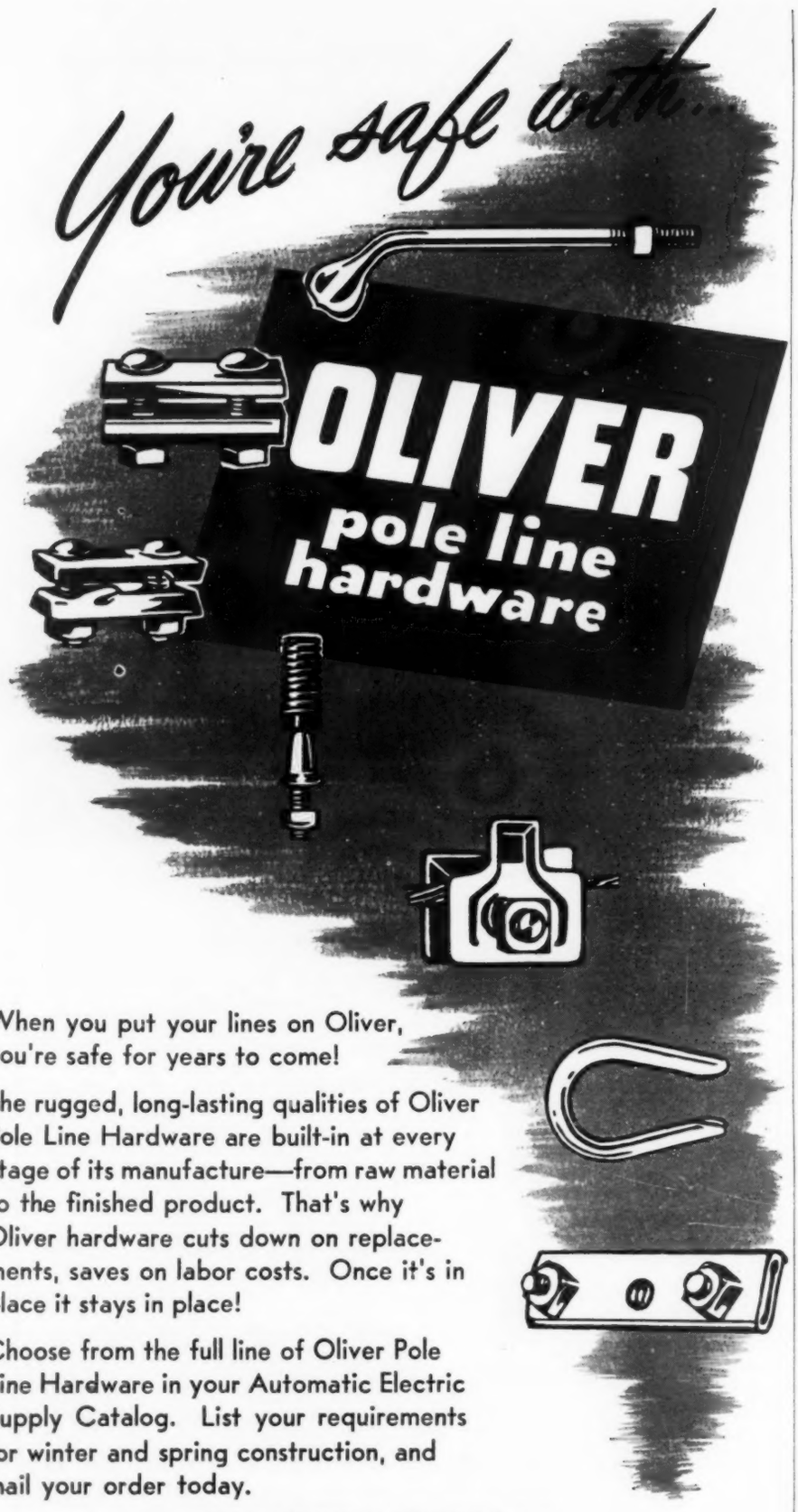

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The rugged, long-lasting qualities of Oliver Pole Line Hardware are built-in at every stage of its manufacture—from raw material to the finished product. That's why Oliver hardware cuts down on replacements, saves on labor costs. Once it's in place it stays in place!

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Interstate Introduces Waterproof Lineman's Suit

The Interstate Manufacturing Company, Hudson, Massachusetts, has introduced a two piece waterproof lineman's suit. This suit is resistant to rain, wind, hail and sleet; lightweight and roomy. The suit is made from

Waterproof lineman's suit is designed to be worn over regular clothing.

double textured fabrics, heat cured and is designed to be worn over regular clothing.

Developed from specifications submitted by engineering departments of several companies, the Interstate lineman's suit has been approved as standard equipment and meets all approved safety tests.

For further information write New Products' Editor, Telephone Engineer Publications.

◆

E. G. Browell Joins Stromberg-Carlson Sales Staff

T. C. (Tommy) Thompson, Stromberg-Carlson telephone sales manager, has announced that E. G. Browell, carrier systems project engineer, has joined the telephone sales staff and will cover the states of Oklahoma, Arkansas, and southern Kansas, reporting di-

rectly to Arthur B. Preble, manager of telephone sales in Kansas City.

Mr. Browell was born in Regina, Saskatchewan and was graduated in 1938 from the University of Manitoba with a bachelor of science degree in electrical engineering. He has been employed in the Stromberg-Carlson engineering division the last two years.

He was a radar design engineer in the transmitter division of General Electric during the war and prior to that was an instructor in electronics at the University of Iowa. He also designed power systems for the United Light and Power Service Company in Davenport, Iowa.

The new Stromberg-Carlson salesman is a capable photographer and enthusiastic stamp collector. He is married and the father of a two-year old girl.

◆

Federal Appoints Rennaker, Mobile Radio-Telephone Sales Mgr.

R. B. Rennaker, affliated with the radio industry for the past 25 years, has been appointed sales manager of the mobile radio telephone division of Federal Telephone & Radio Corporation, Clifton, New Jersey, manufacturing associate of International Telephone & Telegraph Corporation.

Mr. Rennaker was formerly associated with both the Mutual and Columbia Broadcasting systems in addition to serving in Washington, D. C., with the war department.

Beginning as a "ham" station radio operator while still in school, Mr. Rennaker later became a consulting engineer and part owner of a radio station in Indiana. In 1934 be became chief engineer for Station WFBM, where he remained for five years.

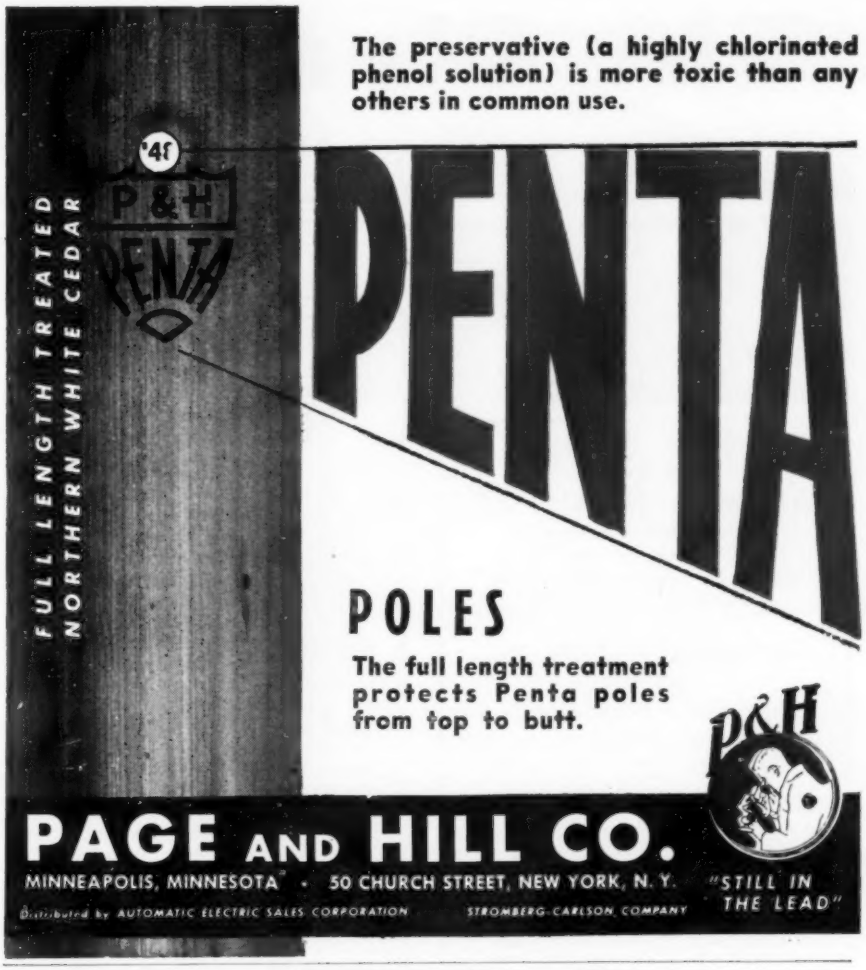
Mr. Rennaker joined Federal in 1945 as broadcast equipment sales engineer. He subsequently became associated with Collins Radio Company for one year and rejoined Federal recently to assume his new duties in FTR's sales force.

◆

New Folder Describes Rodding Equipment

A new four-page folder showing application of "Flexible" steel duct rodding equipment in working and maintaining telephone line ducts has been issued by Flexible Sewer-Rod Equipment Company. The fully illustrated folder shows complete but simplified rodding operations from single manhole stations, faster methods of pulling fishwire and retrieving burned-off cables,

(*Please turn to page* 84)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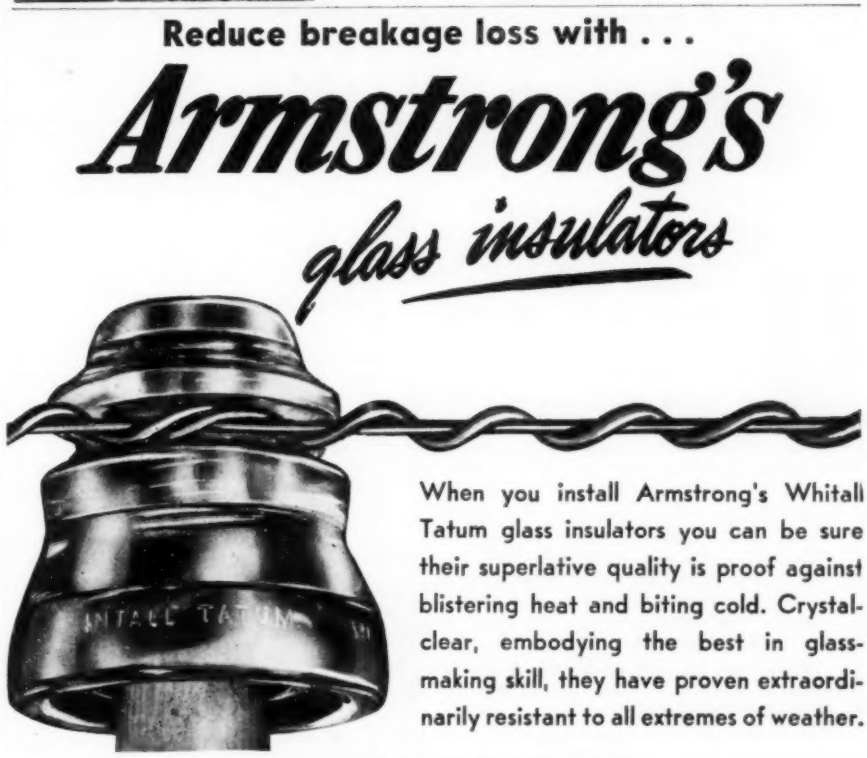
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HELP WANTED: First-class switchman familiar with Strowger equipment for ultimate position of Chief Switchman in 10,000 station exchange. Preferably man under 45 years of age. Send photograph and full details of experience, ability, salary expected, etc. Write Box No. 8562 c/o Telephone Engineer.

HELP WANTED: Combination man capable of taking care of 425 magneto telephone subscribers. Installation, trouble location, and rebuilding. Give age, experience, and salary expected. Write B. G. Miller, Crete, Nebraska.

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Unusual opportunity in the communications field for experienced line construction crew foremen or experienced linemen who can qualify for foremen. Locate in either Illinois or Wisconsin. Good wages with 40 hour week. Liberal Vacation, pension plan, other benefits. State age, experience, dependents. Enclose recent photo. **Commonwealth Telephone Co., Madison, Wisconsin.**

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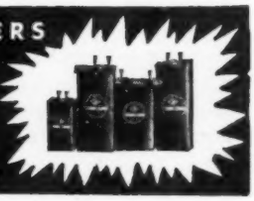

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FOR SALE: 3,000 single unit transposition brackets similar to Hubbard 9251. New, war surplus, in cases of 20 @ $5.00 per case. Write D. P. Christensen, Eatonville, Wisconsin.

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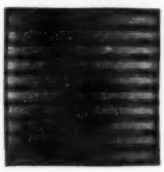

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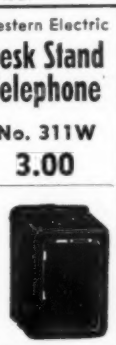

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Complete Set
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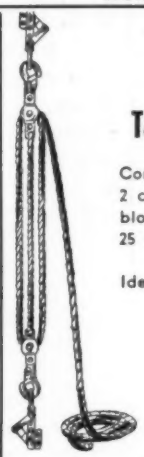

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New folder describes "Flexible" steel duct rodding.

application of power drive in boring through mud, sand or root growth deposits.

"Flexible" working tools, including spear heads, augers, corkscrews, pilots, duct fishers, pull-outs and assembly wrenches are illustrated and described. Ezy Rod Reels, rod guides and jack suggestions for duct rodding units are also included. For more information write Free Literature Dept., Telephone Engineer Publications.

◆

Federal Expands West Coast Staff

In further expansion of its national sales organization, Federal Telephone & Radio Corporation, Clifton, New Jersey, associate of International Telephone & Telegraph Corporation, has added two sales engineers to its California staff, representing FTR's mobile radio telephone division.

Lt. Commander R. E. Trapeur (U. S. Navy, retired), has joined Federal to act as sales representative in Northern California, following more than 30 years service in the Navy where he was actively engaged in electronics and communications work. Comm. Trapeur is a graduate of the Naval Electronics School and Naval Research Laboratory and for some years specialized in underwater sound—now known as "Sonar". During World War II he served as assistant resident inspector of Naval Material, with headquarters at the RCA Mfg. Plant, Camden, N. J. Comm. Trapeur also served as 19th Fleet Electronics Officer.

Richard Reimer has also joined Federal, to represent the company's mobile radio telephone division in Southern California. Mr. Reimer has had extensive experience in aircraft radar and radio equipment, including several years of broadcast transmitter work.

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All the strength and durability inherent in steel are combined—with definite economies—in *Crapo* Galvanized Steel Strand. Heavy, ductile, tightly-bonded zinc coatings, applied by the famous *Crapo* Galvanizing Process, provide lasting protection against corrosion.

Ask the distributor of *Crapo* Galvanized Products near you or write direct for further information!

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MUNCIE, INDIANA

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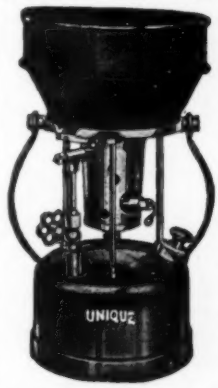

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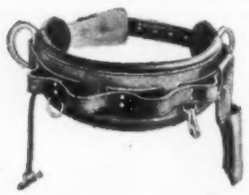

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DEPEND ON
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THE BACK OF THE BOOK

By JOHN G. REYNOLDS
Managing Editor

Better Telephone Service. . . . While we're in a hat-doffing mood, a hearty tip of the brim should be slanted toward G. A. KLEIN, general manager of the Nebraska Continental Telephone Company, Columbus, Nebraska. Mr. Klein recently received editorial praise from the Kearney (Neb.) Daily Hub for his successful efforts to bring better telephone service to the town.

In a feature editorial the paper stated: "When G. A. Klein took over as general manager of the Nebraska Continental Telephone Company some months ago the Kearney service was anything but satisfactory. Mr. Klein readily admitted this and in both private conversations and in a talk before the Kearney Chamber of Commerce promised that steps would be taken to remedy the situation. He has kept these promises, and Kearney is now enjoying much better telephone service. . . . The Hub was critical of the service Kearney was receiving and now that the company has eliminated much, if not all of the trouble, The Hub believes the achievement should be recognized, and we want to compliment Mr. Klein and his staff on the improvements they have made."

• • •

Mobilization . . . Industry mobilization blueprints are going at a fast pace with the preparedness planners ready to find the answers to many questions.

Some 25,000 to 30,000 factories across the country are on the checklist of industrial mobilization officials, heading up in the National Securities Resources Board. Agents are being sent to each plant to catalog its production possibilities and capacity. This spot checking, still largely a paper plan, now is receiving high priority for action.

If he works hard for the rest of his life, he will be able to provide the government with a handsome slice of inheritance tax when he dies.

• • •

"Cradle To The Grave" . . . Who pays taxes? The answer is everybody, from cradle to grave and even after that, according to the Taxpayers Federation of Illinois.

The federation's research department took an article in the May issue of Tax Outlook, published by the Tax Foundation, and adapted it to Illinois. The resultant description of a day in the life of Henry Everyman follows:

Henry Everyman reaches out at 7 a.m. of a bright May morning to turn off the alarm clock (price: $5 plus $1.10 tax). Accompanied by the trebling of birds, he climbs wearily out of bed (price: $195 plus $3.90 sales tax plus personal property tax). He walks across the floor of his $8,000 house (annual general property tax $220), and switches on the electricity (33c tax on his $10 monthly bill) that lights the bulb (price: 20c plus 1c federal tax plus 1c sales tax).

To music from a bedroom radio (price: $30 plus $3.60 tax), Henry shaves. As a radio newscaster reports that Henry's local taxes have reached new peaks, Henry slaps across his jowls a handful of bay rum (price: $1.30 plus 24c tax).

Arriving eventually at the office, Henry sighs (no tax!) and settles to a day's work (annual income: $5,000; federal income tax $450).

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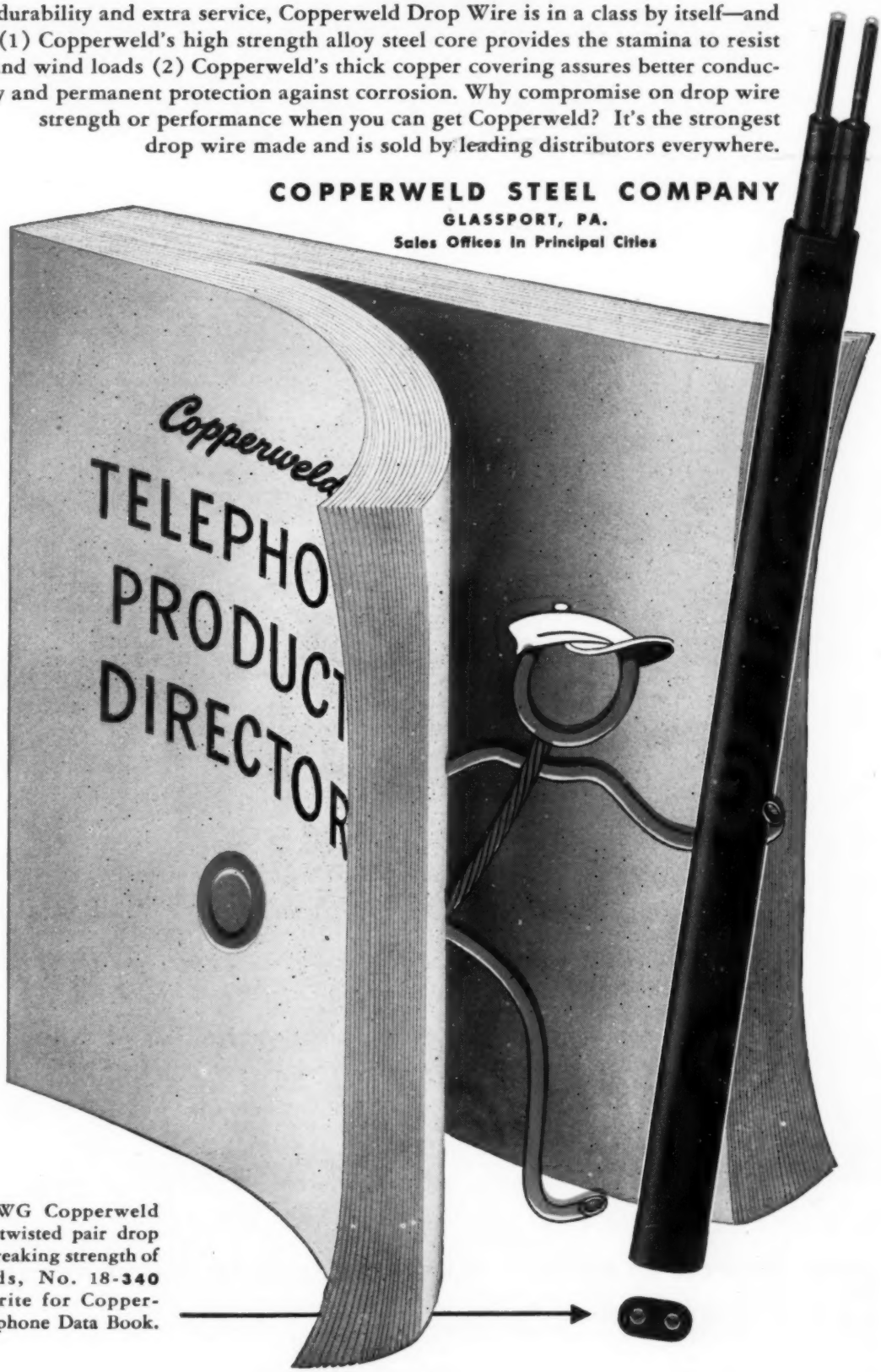

*No. 17 AWG Copperweld parallel or twisted pair drop wire has a breaking strength of **400** pounds, No. 18-**340** pounds. Write for Copperweld's Telephone Data Book.

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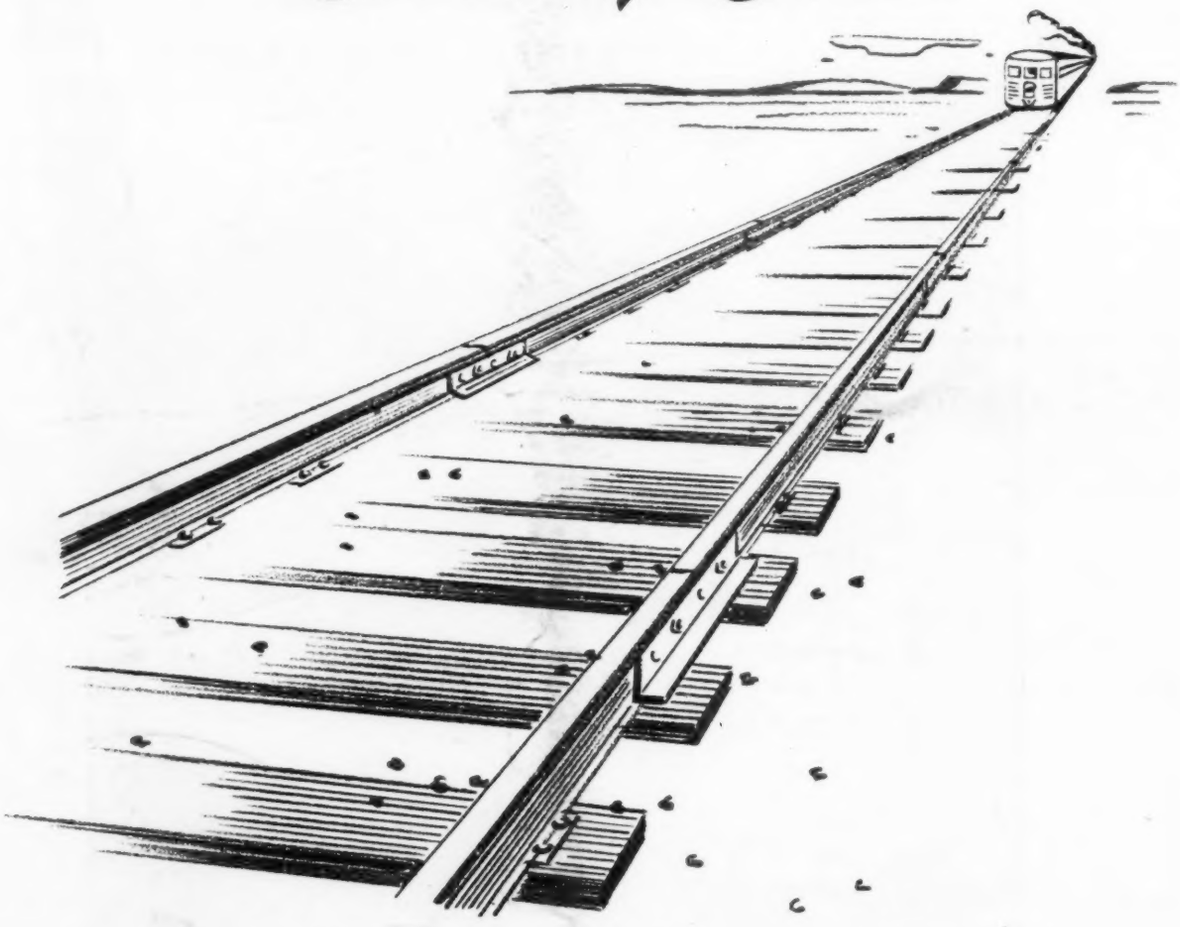

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